CHNOLOGY DEPT.

PUBLIC LIBRARY
MAY 16 1933
DETROIT

A National Newspaper for Every Branch of the Industry

Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · MACHINERY · PARTS · ACCESSORIES · TOOLS

Vol. 15. No. 1982 — Entered as second-class matter Aug. 27, 1925, Post Office, N. Y., N. Y. Under Act of March 3, 1879 — NEW YORK, TUESDAY, MAY 16, 1933 — 5 Cents. $12 Per Year.

First Copy

April New Car Sales in 20 States Closely Approximate Sales in Same Month in 1932

Curve, Which Had Been Continuously Declining Since October, 1929, Rapidly Being Flattened Out by Renewed Buying

Detroit, Mich., May 15.—The curve of new motor car sales, which has been continuously declining since October, 1929, rapidly is being flattened out under the impulse of renewed public buying, it was indicated today in the weekly national motor car sales report issued by R. L. Polk & Co.

Registration reports from twenty states show that April sales of new passenger automobiles greatly exceeded the totals for the preceding month and closely approximated sales in the same month last year. In fact, sales in eight of the states exceeded sales for the same month last year, while several other states were close to the 1932 mark.

Inasmuch as the totals for the week did not include returns from such key states as New York, Pennsylvania, New Jersey, Massachusetts, Ohio, Indiana, Missouri or California, it was considered possible that above-the-average registration totals from some of these states might lift April's total to that for the same month last year.

The reports from the twenty states already tabulated showed total registrations of 30,031 units. This was 42.59 per cent. greater than the 21,052 total for those states in March and only 9.44 per cent. under the 33,144 total of April, 1932. On the basis of these reports from states which normally represent approximately 27 per cent. of the country it was estimated that the April total would reach at least 111,000, which would compare with 78,741 in March and 121,093 in April last year.

New truck sales for April were estimated to have been 16,000, as compared with 9,934 in March and 17,784 in April a year ago. The twenty states showed registrations of 4,664, which was 53.81 per cent. over the 3,032 registration total in these states for March and only 3.22 per cent. below the 4,819 units registered in the same states in April of last year.

CREDIT ASS'N FINDS MAY TRADE BETTER

New York May 15.—Definite improvement in both wholesale sales and collections throughout the country is noted in the May survey released by the National Association of Credit Men and published in its official magazine, Credit and Financial Management.

The survey is based on monthly reports from correspondents in 104 of the major markets of the country including every state. It reveals that "good" collections were in evidence in April in San Diego, Cal.; Cedar Rapids, Ia.; Springfield, Mass., and Detroit, Mich. San Diego is also represented in the "good" sales column. Cedar Rapids is the sole city reporting to have held its position in the "good" column from the April survey.

Contrasting the May and April surveys brings out the especially strong improvement, 51 per cent. of the reports in May noting "fair" conditions in sales as compared with 33 per cent. in April. In collections the May percentage reaches 41 per cent. in the "fair" column, compared with 19 per cent. in April.

Supplementary reports reveal interesting comments as follows:

California: San Diego reports sales

(Continued on Page 2)

WILLYS-OVERLAND PAYS 70% OF ITS BACK WAGE PROGRESS BEING MADE

Toledo, O., May 15.—Steady progress in working out the affairs of the Willys-Overland Company was reported by John N. Willys, co-receiver with L. A. Miller, following a conference here with Federal Judge George P. Hahn.

At the conference, it is understood, Mr. Willys reviewed operations at the Toledo plant and outlined the progress which has been made thus far in rehabilitating the Willys-Overland Company.

He expressed himself as being highly pleased with the general improvement of business conditions and declared that the general pick-up cannot help but contribute to the bettering of local conditions in the near future.

Mr. Willys was particularly

(Continued on Page 2)

STEEL OPERATIONS IN OHIO AT 40% CAPACITY

Youngstown, O., May 15.—Automobile steel buying continues to be the greatest single factor in the sharpest upswing in steel plant operations ever recorded in this district. Mill operations in the valley area, measured by ingot output, rose this week to 40 per cent. of capacity from 38 per cent. last week, and 12 per cent. in the last week of March, 1933.

Thirty-seven of eighty-three open-hearths are melting, against thirty-six last week, and the active furnaces have increased output. Three Bessemer plants are operating part-time.

Steel trade observers here see little likelihood of sharp reductions in automobile steel buying within thirty days and believe that the recovery in automobile output will continue for at least sixty days.

Throughout northeastern Ohio and western Pennsylvania idle plants are being prepared for production. One blast furnace soon to be melting has not been operated since 1929 when district ingot output was above 80 per cent.

COLLINS & AIKMAN WAGES UP 5 PER CENT

New York, May 15.—An increase in wages of 5 per cent., affecting over 2,000 employees, has been announced by the Collins & Aikman Corporation, a leading manufacturer of automotive and furniture upholsteries and carpets.

The increase, which becomes effective today, applies in the company's plants in Philadelphia, Roxboro, N. C., and Bristol, R. I.

May Output Schedules Increased; 200,000 Now Seen as Conservative

AUTOMOBILES AND STEEL HOLD LEAD IN TRADE UPTURN

The following survey of trade conditions, which is reproduced herewith in part, was compiled by the New York Daily Investment News, and appeared in its fourth anniversary issue dated May 15.

Appraisal of the current upswing in business reveals that among the leading industries the improvement has been most outstanding in steel and automobiles. Freight car loadings and production of electricity have participated in a marked degree, with building the laggard.

Construction activity, with the exception of public works, declined almost to the vanishing point during the past winter, and the recovery during the post-bank holiday period has been only moderate.

Sustained operations above the

(Continued on Page 4)

STUDEBAKER SALES IN MAY SHOW 17.3% GAIN OVER MAY, 1932

South Bend, Ind., May 15.—Further reflecting the automobile industry's recent gains over 1932, Studebaker has reported that May dealer orders received for Studebaker and Rockne passenger and commercial cars, both domestic and export, as of record May 10 showed an increase of 17.3 per cent. over orders as of record May 10, 1932.

"May orders as of record May 10 this year totaled 3,748 units, against 3,194 on the same date last year," Paul G. Hoffman, president of the Studebaker Sales Corporation of America, announced.

"The 3,748 total also represents a gain of 17 per cent. over orders as of record April 10, 1933. This is more than a seasonal increase, as our May over April gains have averaged 12.8 per cent. over the last ten-year period.

"In addition, orders from Studebaker's retail branches in New York

(Continued on Page 2)

CONTINENTAL-DIVCO SALE DOUBLED IN APRIL

Detroit, Mich., May 15.—April sales to dairies and milk companies of the patented low aisle house-to-house DiVco delivery vehicles were 250 per cent. in excess of sales in March, it was announced by W. R. Angell, president of Continental DiVco Company, a subsidiary of Continental Motors Corporation.

The Continental DiVco head states that unfilled orders on hand, together with promising future sales, point to a continuation of the satisfactory business just reported for April. Three hundred and fifty dairies, including the leading firms in the United States and Canada, include DiVco units in their delivery fleets, it is held.

Chevrolet, Plymouth and Ford Expected to Turn Out 150,000 Units Alone; Production Is Still Held Strictly to Demand

By CHRIS SINSABAUGH

Detroit, May 15.—Half a month gone, and in the fortnight since May popped up on the calendar pads production has been stepped up over the original projections by most of the companies. Any one betting on better than 200,000 units for May, which, incidentally, is better than the same period in 1932, shouldn't worry.

The count should be well over that, but how much is the sticker. Most likely there will be even more increases in production before the end of the semester. Even if they wanted to tell you, I doubt if any one could, because the industry still is building to order and they have to be shown the commitments before they speed up the production pace.

It would seem as if Chevrolet, Ford and Plymouth alone should come close to the figures of May, 1932. The big three ought to beat 150,000. All the others are running comparatively high and probably every one will exceed last year's May by comfortable margins.

But we wouldn't have all this production if orders were not coming in. They are, and manufacturers are becoming more and more convinced that the delayed spring buying season is on and going so fast that in the final analysis we are going to find that we have made up the ground lost through the banking holidays and the bad weather.

Reports issued during the past week by various companies, each and every one showed increases over the preceding week and all of them better than this time last year. More convincing still is the fact that with most every one there has been a succession of increases for the past four and five weeks without a single one showing a setback.

While the low priced group has

(Continued on Page 2)

ENGINE REBUILDERS TO HOLD MEETING IN CHICAGO JULY 10

Chicago, May 15.—With more than the usual amount of interest being shown by members, indications point to the largest attendance at the eleventh annual convention of the Automotive Engine Rebuilders Association which is being held this year in Chicago. Convention headquarters will be at the Sherman Hotel, and the convention will open on the morning of July 10 and continue through July 14.

Many prominent authorities of the automotive maintenance business will appear before the convention, and such important subjects as cam-grinding of pistons, tin plating of pistons, automotive engine lubrication and a very detailed analysis of the cost and selling prices of this work wil lbe discussed by these able authorities.

In planning the program this year the committee in charge, who is composed of L. C. Smith of the L. C. Smith Bearing Company and John Heckman of the Heckman Machine Works, both of Chicago, are planning the addresses, so that each session will be devoted to one subject and provide ample time for the intimate discussion of the subject by the members themselves.

One of the favorable factors for the convention this year is the fact that the program committee has so arranged the program that attending members will have ample opportunity to attend the Century of Progress World's Fair, which will

(Continued on Page 4)

AIRPLANE TO CARRY THREE AUTOMOBILES

Chicago, May 15.—Plans for new type freight planes capable of carrying 12,000 pounds of freight or three automobiles on long flights were revealed here today by L. B. Manning, chariman of the board of American Airways, Inc.

Construction of the plane, which will make a strong bid for the heavier pay loads thus far handled by railroad and buses, will be begun within a few months by the Stinson Aircraft Corporation at Wayne, Mich., he said.

The giant ship will be a twin-motored all-metal Stinson, with a cruising speed of eighty miles an hour and a top speed of 100 miles, especially engined for long hauls. The planes will be designed so it will be possible to place three 4,000-pound automobiles or four smaller cars into the cabin, fully assembled but for the wheels.

WAYNE COUNTY SALES UP 9% WEEK OF MAY 12

Detroit, May 15.—Wayne county showed another generous increase in automotive sales in the week ended Friday, May 12, over those of the previous week. The totals last week were 1,340 passenger cars and 50 trucks, as compared with 1,230 passenger cars and 52 trucks sold in the previous week. This is a gain of just over 9 per cent.

Dealers here are entirely optimistic and most of them believe that the sales revival now in evidence will continue much later than would normally be the case. In fact, some of the retail merchants insist that this year June will mark the peak of the buying season.

INDIANAPOLIS REPORTS GENERAL BUSINESS LIFT

Indianapolis, Ind., May 15.—General improvement in business conditions was reflected here last week in the optimistic expression of local industrial and business leaders, including several in the automotive field.

H. T. Ames, president of Duesenberg, Inc., which participated in the

(Continued on Page 4)

May Output Scheduled Boosted as Orders Gain

(Continued from Page 1)

the volume at the present time, in the other groups the sales activity is in the same ratio. Take Cadillac, for instance. John Chick, general sales manager, is authority for the statement that only last week the original production projection for June was increased 30 per cent. and right now there is a scarcity of cars. The first ten-day period in May was the biggest first ten-day period Cadillac has had this year. Unusual is the fact that the best business is being done in the western part of the country. The plant is working five days a week and has been since the middle of April. It is expected that this schedule will be maintained for at least two more months.

The Chrysler Sales Company reports that deliveries of Chryslers and Plymouths by its dealers for the week ended May 6 was 5 per cent. over the preceding week. The breakdown gives Chrysler a 14 per cent. gain and Plymouth 2 per cent. of the 5 per cent. increase. This is the biggest week in ten months, and 6 per cent. ahead of the corresponding week last year. From January 1 to May 6 Chrysler is 7 per cent. ahead of the same stretch last year, and this is the fourth consecutive weekly increase.

Plymouth announced last Thursday that 77 per cent. of its May production, valued at more than $10,000,000, already had been sold to dealers. Since that time orders have been pouring in and now the company amends its previous statement by declaring that the entire output for the month has been practically sold. Production is running around 1,250 a day, and it is expected that this will have to be stepped up. In the week ended May 6 there were 4,700 standard and de luxe models sold by dealers, the best showing in the company's history.

This telegram, from Chester G. Abbott, general sales manager, was read over the air during the radio meeting last Thursday, and it aptly describes the situation at the Hudson plant: "We want you to know that this is the eighth week of steadily increasing sales, not only in the United States but in Canada and abroad. This week shows the largest shipments of Hudson and Essex cars since February, 1931. Domestic shipments for May will be more than double those for May, 1932, and export shipments will be more than three times those for last May; in fact, export shipments for the first five months of this year will be greater than for the first nine months of last year. Canadian shipments for May will be considerabily higher than for May a year ago."

Since this was read Hudson has been forced to increase production up to 2,000 cars a week, whereas it previously was running 1,200 to 1,500.

Hupmobile, through Sales Manager R. S. Cole, is happy because shipments for the week ended May 6 totaled 131 cars, the plant working one shift three days a week. Shipments for the first eight days of May, compared with the same period in April, show an increase of 29 per cent. Shipments and unfilled orders for the first eight days of May, compared with the same period in April, increased 30 per cent. Actual deliveries to buyers for the four weeks ended May 6 increased 51 per cent. over the four weeks ended April 6, the largest four weeks' period since the month of July, 1932. Stocks of unsold cars on hand May 6, compared with April 6, showed a decrease of 3 per cent. and, compared with April 6, 1932, a decrease of 57 per cent.

WILLYS-OVERLAND PAYS 70% OF ITS BACK WAGE PROGRESS BEING MADE

(Continued from Page 1)

pleased with the progress that has been made thus far in reducing the amount of wages due to workmen. Another 30 per cent. of the back wages owed the workmen was paid Saturday and amounted to a distribution of $90,000. The latest payment brought the total paid on the back wages to 70 per cent.

Mr. Willys announced that Mr. Miller is now in California on company business and is expected to return to Toledo early this week.

STUDEBAKER SALES IN MAY SHOW 17.3% GAIN OVER MAY, 1932

(Continued from Page 1)

and Detroit as of May 10 show a gain of 157 per cent. over May orders as of the same date last year. I believe that this increase in Studebaker and Rockne orders is a fair reflection of the optimism now prevalent in the metropolitan automobile markets of the country."

THERMOID REPORTS APRIL SALES OVER '32

Trenton, N. J., May 15.—R. J. Stokes, president of the Thermoid Company, reports sales for April, 1933, were 50 per cent. ahead of March, 1933, and 5 per cent. ahead of April, 1932. In 1932 the April sales showed a seasonal increase of only 10 per cent. over March of the same year.

"The Woven Steel Hose and Rubber Company, a wholly owned subsidiary, acquired in 1931, has been showing a steady increase in business," said Mr. Stokes. "This plant is running at full capacity, and during the last sixty days we have about doubled our force. Employees in other divisions are enjoying steadily increased employment. Our business with the automobile industry, at this moment, is showing steady improvement.

Offers greatest return
per dealer dollar invested

The American Austin

America's Most Economical Passenger and Commercial Cars

$275 up F. O. B. Factory

Write for details about non-conflicting and valuable franchise

American Austin Car Co., Inc., Butler, Pa.

FINANCIAL NEWS

TRICO PRODUCTS

New York, May 15.—Trico Products reports for the March quarter net profit of $170,756 after charges and taxes. This compares with $356,459 or 95 cents a share in the first quarter of 1932.

FAIRBANKS

Toledo, May 15.—Fairbanks and subsidiaries report for the quarter ended March 31 net loss of $88,355 after taxes, interest, depreciation, etc., comparing with net loss of $75,331 in the first quarter of 1932.

OWENS-ILLINOIS GLASS

Toledo, May 15. — Owens-Illinois Glass Company announced yesterday it would retire and cancel its entire outstanding issues of senior securities, consisting of $3,774,000 of 5 per cent. debentures and $8,000,000 of preferred stock, as well as 6 per cent. first mortgage bonds of the Root Glass Company assumed by Owens-Illinois. The deal is being accomplished by issuing 200,000 shares of common stock and using part of the company's surplus funds, William E. Levis, president of Owens-Illinois, said.

Illinois Glass Company, of which Mr. Levis is also president and which became identified with the Owens-Illinois management in a merger in 1929, is the holder of $2,000,000 of the debentures and the entire issue of preferred. It will accept for them 200,000 shares of Owens-Illinois common, giving it ownership of slightly under 20 per cent. of the total issue of 1,200,000 of this stock.

LUMBER

Washington, May 15. — For the first time this year or last, lumber orders booked at the mills exceeded 200,000,000 feet during the week ended May 6 and lumber production was the highest since last fall, according to telgraphic reports to the National Lumber Manufacturers Association from regional associations covering the operations of 643 leading softwood and hardwood mills.

The gain in new business was shared by both hardwoods and softwoods. All production totaled 123,845,000 feet; orders 208,655,000 feet; shipments 149,544,000 feet.

MOSSER LEATHER

Williamsport, Pa., May 15.—Recalling to steady working schedules approximately 700 employees, the J. K. Mosser Leather Corporation, a subsidiary of Armour and Company, resumed full time production schedules at its plant here on a fifty-hour a week basis. According to M. P. Brennan, general superintendent, there has been wide improvement in the volume of new orders for sole and other leather products during the past fortnight. Normal output is 170,000 pairs of soles daily.

YELLOW TRUCK & COACH

Portland, Me., May 15.—At the annual meeting of the stockholders of Yellow Truck and Coach Manufacturing Company held here the directors were re-elected.

CREDIT ASS'N FINDS MAY TRADE BETTER

(Continued from Page 1)

and collections improving considerably, but Oakland finds the failure of one bank to reopen affecting conditions.

Indiana: Terre Haute finds business much better and believes the return of beer is responsible for this.

Kentucky: Louisville notes improvement since the bank moratorium.

Massachusetts: Springfield reports "a period of confidence has set in since the election"—this from a hard-boiled Republican.

YALE & TOWNE ANNOUNCES NEW LINE OF GAS PUMPS

Stamford, Conn., May 15.—Yale & Towne Manufacturing Company has developed a new line of gasoline pumps for filling stations which will be ready for the market shortly. Salesmen handling general lines report business conditions improving in the Middle West.

SPARKS from DETROIT

Colonel McCormick
* * *
Brass Hats Gather
* * *
Hudson Speeds Up
* * *
De Soto Does Well
* * *

Chris Sinsabaugh
Detroit Editor

ALTHOUGH Col. Robert R. McCormick, publisher of the Chicago Tribune, talked on governmental matters, with a heavy emphasis on taxation, when he appeared before the Adcraft Club of Detroit, you could sense it was an automobile affair because practically every brass hat in the business who happened to be in town at the time was present and accounted for.

You knew the colonel was motor-minded when he started talking about the early days when evolution was converting the horseless carriage into the automobile, and you could understand his enthusiasm for the improved highways cause when he told you that his father had built the first hard road in the state of Illinois, a strip a mile long and about six feet in width. That was the nest egg that has produced Illinois' magnificent system of concrete.

* * *

IT WAS MOST COMPLIMENTARY to the publisher of the Chicago Tribune to have such a turnout because it showed him that the motor magnates appreciate what he has done for the industry through his staunch advocacy of improved highways. Likewise it was a big feather in the cap of the new Adcraft president, our own George Mertz Slocum to see under one tent such automobile notables as W. J. McAneeny, K. T. Keller, J. E. Fields, B. E. Koether, H. J. Klingler, W. A. Blees, Courtney Johnson, John C. Chick, A. vanDerZee, R. K. White, R. M. W. Shaw and William B. Stout at the speakers' table, while among the listeners were most of the advertising managers and prominent agency executives—possibly some 250 altogether and one of the biggest luncheons the club ever has staged in General Motors Auditorium.

* * *

I PARTICULARLY LIKED the introduction of Col. McCormick by Malcolm Bingay, the eloquent editorial director of the Detroit Free Press, perhaps because I am a newspaper man myself and appreciating the compliment to the colonel when he said: "No newspaper rises any higher than the character of the man who dominates it. In fact, every newspaper reflects the personality of the man who directs its destinies. You can get a good idea of the character of Col. McCormick by the reputation of the Chicago Tribune. It is a great, militant force in American journalism, a giant in the fight for civic decency in Chicago, a paper with a vision and the courage to go out and attempt the things worth while in life. . . . The colonel is not only a fair newspaper man, he is a great newspaper man; one of the great giants of American journalism."

* * *

THE DAY BEFORE the adcraft Club party the commentator sat in at Aaron De Roy's combined luncheon and business meeting which brought about the introduction of the new Terraplane six. It was unique because the whole program was built around the nation-wide radio broadcast, which itself was a business meeting, with the public permitted to dial in and listen to the campaign as outlined over the air by President McAneeny, General Sales Manager Chester Abbott, Sales Manager W. R. Tracey, Body Stylist Frank Spring, substituting for Chief Engineer Stuart Baits, and Bill James, assistant sales manager in charge of advertising.

* * *

ROY CHAPIN, chairman of the Hudson board and former Secretary of Commerce of the United States, was there in the flesh and delighted the De Roy dealers by making a neat little speech.

Brimming with enthusiasm over the way Hudson-Essex is going these days, Chapin told me that he now has his coat off and is working tooth and nail just as in the old days.

"You'll recall that I was the first to drive an automobile from Detroit to New York city," said Chapin to me. "That was in 1901 and it took me some ten days to make the trip. The other day I took one of the new Terraplanes and drove over the same route the first time in thirty-two years. What a difference, and what a difference in cars!"

* * *

DE SOTO HAS been and is holding a series of conferences with representatives and district managers relative to the spring drive now on. One of those at the factory is John Berry, district manager for California, who is bragging a bit about De Soto activity in his territory. California is one of the world's greatest automobile markets, he says, and he declares that sales by his dealers have been showing steady increases.

Retail Salesmen — This Is Your Page

This department is devoted to the interests of the retail sales division of the industry. Salesmen, this is your department. Automotive Daily News wants you to get something from this department that will help you in your work on the firing line. It wants you to pass on your own experiences, success, failures to help your brother salesmen. Send in your story in the form of a letter, or even a postal card, and let us get it ready for publication. Your achievement or your mistake may help another salesman to make sales or avoid errors that cost you commissions.

Dealers read this page. Give us the benefit of your reactions on these problems that affect the work of your salesmen, the men on the firing line, the men who bring home the bacon or don't.

SELLING DEALERS ON THEIR OWN ABILITY TO SELL

The Teefy-Seltz Company, distributors of Studebaker and Rockne car at Kingston, Pa., has an excellent method of conducting meetings for branch dealers and salesmen. The executive conducting the meeting presents the facts regarding present conditions and opportunities.

Then he discusses mistakes that are made and how to correct them. A series of graphic presentations, some of which are being used herewith, are employed to drive home the points touched on in the meeting. Noting the improvement in general conditions, the speaker continued:

Now, let us make some analysis as to our new car sale potentials. There are 25,000,000 motive vehicles operating on the highways of the United States today. Approximately 8,000,000 of these have two-wheel brakes which is reasonable to assume a helpful condition as a used car replacement market. Seventeen million new cars have been built since 1926 and which now should constitute the industries greatest new car replacement field. It is safe to say without fear of contradiction that the biggest percentage of our dealers are not adequately financed to handle a volume of new car business. These conclusions are based on the facts that it necessitates a certain amount of capital to be invested in used cars, and the possibilities of a carry-over from thirty to ninety days. So let us attack this situation from another angle. Let us take our various departments, and find out where we can fortify our position, and the thing to do to make new car merchandise a profitable business.

LEAKS

You would immediately fix a leak on your roof, why not check your sales, service and used car department for inefficient departmental leaks? Departmental leaks have put many a dealer out of business. Let us touch on demonstrators. Demonstrators can become a very costly item if care is not exercised. A demonstrator should be used for no other purpose than to demonstrate to the prospective new car buyer, instead of a general courtesy car for the use of any one who might need transportation in your organization. A retail salesman without a demonstrator is placed in the same position as the carpenter would be without a hatchet or saw. Yet you will find in 90 per cent. of the dealer organizations inadequate facilities for their retail sales organization. It is true that there are many dealer set-ups that cannot support a demonstrator for each retail salesman. In such cases it would be my suggestion that you assign a good used car for the purpose of contact making, then if interest is established in your products, take a demonstrator to your prospect that is sparkling with cleanliness and if the prospect is really a new car buyer your chances will be greater in getting the sale. Never appraise a used car until you have taken your prospect out for a demonstration in your new car, and that you have gone over the specifications and the many characteristic advantages of your new car. By doing this first you will find less resistance when submitting an appraisal for the used car.

COST OF SALES

We have here compiled a sales cost barometer which is based on a 25 per cent. discount and a ten-car sale turnover per month, at a base price of $1,200. Now, according to national automobile sales authorities, they claim a 7 per cent. used car loss can be afforded by a retail dealer. Let us assume that these figures are correct. It costs on an average of 5 per cent. for the selling of either the new or used cars. We find so far we used us 12 per cent. of our gross profit. Policy and free service average 2 per cent. of the dealer's gross profit. The cost for the maintenance of demonstrators, for gas and oil average 1 per cent. We have thus far consumed 15 per cent. of our gross profit. Let us take rent, light, heat, telephone, insurance and taxes, approximated for an establishment needed to merchandise ten cars per month on the basis of $360 per month, or 3 per cent. We have now 18 per cent. of our gross profit used up. We also have to consider the cost for executive management, our investment contingencies, which we inherit, interest on bank and finance company loans, advertisements, cost of printing, stamps, stationery, etc., and the auditing of our business, whether by a bookkeeper or certified public accountant. On these bases, if the true cost were actually figured, our profit possibilities would be rather vague. So what is the answer and what procedure is necessary for us to follow?

It is preposterous to expect that a dealer should have to absorb 7 per cent. of his gross profit through used car losses. Sales commissions cannot be placed lower than 5 per cent. That we cannot eliminate. Policy and free service must also be maintained, but this 2 per cent. can be completely absorbed if your service department is efficiently organized and kept busy with paid work. Demonstrators cost can hardly be eliminated. Rent, light, heat, telephone, insurance and taxes must also go on. So, if you will take inventory of your organization and carefully study these figures, and, by the elimination of your 7 per cent. used car loss and your 2 per cent. policy cost, along with the adjustment of any overhead that you might find out of line, it is then reasonable to assume that a dealer should make at least a 5 per cent. net profit. Another very important factor for the dealer to consider is that he should turn over his dollar investment not less than ten times per year in order to get a fair return for his investment.

A used car should be reconditioned immediately after acquisition. Check battery, make necessary repairs, replace all torn carpets and mats, straighten any dents or bumps in body or bumpers, touch up all rust spots, repaint paint blemishes, then give each car a good waxing. If any worn tires, replace them with a good second grade tire. Now, there are two angles for a new car merchandiser to consider. One, that his allowance is in line with marketing conditions, the other that his used car merchandise is kept up in salable shape. If this care is exercised used cars are not a contingency to the new car dealer, but quite an asset. The new car dealer has the edge over the exclusive used car dealer for reasons that when purchasing used cars in trade on new car sales, the new car dealer has the gross profit as a portion toward the purchase of the used car.

ANALYSIS

Now, how can we determine the ability of our retail sales personnel? In the early days of business a merchant had to run a fiscal year in order to get a complete balance of his operation due to the old-fashioned bookkeeping system. Later in years through modern auditing a plan was devised whereby a balance sheet was drawn as a basis of guidance which represented a profit or loss statement for the operation of one month. This gave the merchant an opportunity to diagnose any mismanagement or overhead that might be out of line, along with the falling off of his business, and be immediately placed on the defensive side, to take up and fortify this weak position.

ABILITY

We have a chart here which represents a break down analysis of sales ability. As a matter of illustration we have taken an operation of five retail salesmen, showing number of contacts made, prospects derived from these contacts, and the ratio of prospects to contacts. In the fourth column the number of demonstrations made and the ratio to prospects filed. In the sixth column we have the number of appraisals made to demonstrations and

(Continued on Page 7)

SERVICE SALESMAN
Sell them facts—explain that you are in a position to render satisfactory service. After Telephone contact, write them along with a personal call.
WE RECOMMEND
This form of postal card follow-up.
PARTS ACCESSORIES SALES
SERVICE
ROCKNE
THANKS!
TEEFY-SELTZ, CO., INC.
AUTOMOBILE DEALERS HAVE CREATED THIS BUSINESS
ARE YOU GETTING YOUR SHARE?
ARE USED CARS A BUG-A-BOO?
SALES COST BAROMETER
Frozen Assets,
Obsolete Parts, 1932 Models, Used Cars.
SOLUTION!
RESULTS
You Would Immediately Fix A Leak On The Roof,
Why Not Check Your Sales, Service and Used Car Depts. For Inefficient leaks?

GETTING THE TARDY CUSTOMER TO PAY HIS BILL

In such a period as the present, it is inevitable that the matter of collecting bills is a serious one for the merchant. Valued clients who always have been prompt in settling their indebtedness, today may be slower than was their wont. Sometimes, alas, they get into the class that must be dunned.

Going after the customers to get them to pay up is always a delicate matter. It must be handled with judgment or clients will be lost, who might have been retained as valuable customers. And getting in the money owed is an even more delicate matter today than it normally is.

In a recent bulletin of the service bureau of the Metropolitan Life Insurance Company there are presented several series of letters used by a company which carries on its books a large number of small accounts. When a new account is opened this company sends a friendly letter welcoming the customer and courteously suggesting that "our accounting practice is one of monthly payments, which our patrons prefer."

If a bill is unpaid at the expiration of a month, a routine reminder goes out. The nature of this action is emphasized by the fact that the reminder is in the form of a printed card, with neither salutation nor signature. The card reads: "A matter of routine . . . nothing more than the hope that you will now be glad to send us your check for $....., the amount of your bill for the month of....."

In the event that another month passes, a letter is written, reading: "We know perfectly well how quickly the months slip by, how sometimes unavoidably your usual practice of paying monthly may be omitted, and we are quite sure that you will now wish to send us your check for your bill for (month).

"The amount is $....."

At the end of three months, a letter is sent which places special emphasis on the maintenance of good will. It follows: "Why not have a real understanding about your bill?

"The fact that your name is on our open account list is in itself a proof of our full confidence. The further fact that there has been a little delay, unusual for you, leads us to believe that there must be some mighty good reason. Now, we have not the slightest disposition to press. Perhaps we can be of help to you. If for any reason whatever you still wish to postpone this matter, tell us about it, and we will gladly do anything we can for you."

Number four in the series, as quoted below, is phrased to win a favorable reception: "Suppose we make it a personal matter—your bill.

"There are always two sides to any question. To us, however, your side is the important side, and we are eager to do anything within our power to meet your convenience rather than our own.

"Because of our fullest confidence in you we opened your account gladly. There was the usual understanding that bills should be paid monthly. We are not disturbed when an occasional month slips by. When we hear nothing for several months we like to feel that there is some very good reason, and we want to know it because we want to help. Now, won't you drop in, or telephone (phone number), for the friendliest, frankest kind of a chat? Then we shall all be happy. Unless, of course, it is now convenient for you to send a check for the amount of your bill, $....."

Apparently, few accounts remain unpaid after this fourth letter. It is at this point that there is a change in the approach to those who fail to reciprocate the spirit of the company. Letter number five of the series adopts a slightly different tone, in the following words:

"Is it quite fair?

"There's your bill for $....., dating back now ..... months. Here we are..have been all along—ready to meet you far more than half way, and we have told you so four separate times. Not a word from you.

"The way out is so easy. Tell us about it, just tell us, and see how prompt we are, how wholehearted in our endeavor to make it pleasant for you, convenient for you to do the thing we know you really want to do, namely, to get this bill out of the way."

The sixth letter is along the same lines, stressing the customer's sense of justice as follows: "It hurts, not so much from the dollar side as from the justice side of it. We can conjure up in our minds any number of legitimate reasons why an overlong delay in the payment of your bill might be unavoidable. What we cannot reconcile, however, is the complete silence, especially when a mere word of good faith would have delighted us to leave it all to you.

"How much farther do you think we ought to go along the road to the day when we shall receive your check for $....., which is the amount of your bill now, ... months overdue."

Letter No. 7 is rather graphically worded to drive home the urgency of the situation: "There's inevitably a breaking point! It's the way with our patience some times, and one of those some times is just around the corner. Don't, for your own sake, ignore your bill a minute longer.

"Never mind our side of it; consider your side, the credit reputation involved, the .....; well, just stop to think that you owe $....., have owed it for ..... long months."

It will be noted in letter number eight, which follows, that the language becomes consistently more

(Continued on Page 6)

EDITION
BIG NEWS
10 TUBE PERFORMANCE
FOR ONLY $49.95
WESTERN PRICES SLIGHTLY HIGHER
THE MOST SPECTACULAR VALUE IN CAR RADIO —
AMERICAN BOSCH
VIBRO-POWER CAR RADIO
Write or Wire for Broadside and Dealer Opportunity Facts!
UNITED AMERICAN BOSCH CORPORATION—SPRINGFIELD, MASS.

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

Published Every Day Except Sunday, Monday and Holidays, and Tuesday, When a Holiday Falls on Monday
AUTOMOTIVE DAILY NEWS PUBLISHING CORPORATION
350 Hudson St., New York, N. Y.
O. J. Elder, President. H. A. Tarantous, Vice-President. Alexander Johnston, Secretary.
Entered as second-class matter, August 27, 1925, at the post office at New York, N. Y., under the Act of March 3, 1879.
350 Hudson St., New York, N. Y. Telephone CA nal 6-1000

MEMBER A. B. C.
Mail subscriptions to CIRCULATION DEPARTMENT, 1926 Broadway.
Telephone TR afalgar 7-4500

Subscription Rates: One year, $12.00; two years, $20.00, for United States and Canada, also Mexico, Cuba and Panama
To Other Countries: One year, $15.00; two years, $26.00. Single copies, 5 cents.

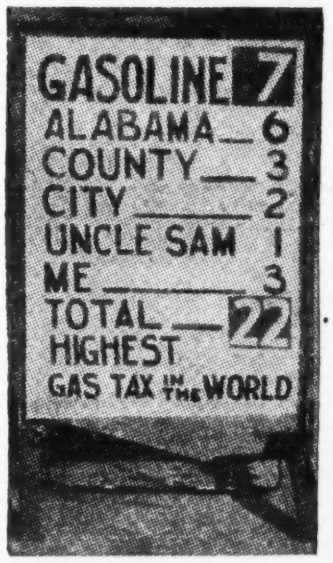
TUESDAY, MAY 16, 1933

ADVERTISING AND BUSINESS HEADQUARTERS
Harry A. Tarantous, Business Manager. 350 Hudson St., New York, N. Y.
B. B. Crighton, Assistant to Business Manager.
George M. Slocum, Manager, Detroit Bureau, 427 Fisher Building, Detroit, Mich.; phone Trinity 2-3500. Willard R. Cotton, Western Manager, 333 North Michigan Ave., Chicago, Ill.; phone Andover 2400. Metz B. Hayes, New England Manager, Little Building, Boston, Mass. Blanchard, Nichols & Coleman, American National Bank Building, San Francisco, Cal.; Lincoln Building, Los Angeles, Cal.; 1037 Henry Building, Seattle, Wash.
Address ALL advertising and business correspondence to 350 Hudson St., New York city.

EDITORIAL DEPARTMENT
350 Hudson St., New York, N. Y. Telephone CA nal 6-1000
Alexander Johnston, Editor. William C. Callahan, News Editor
Statistical Department (registration and specifications), P. J. Robas, statistician. Engineering Department, Herbert Chase, engineering editor. Merchandising Department, Charles S. Zack, editor. Art Department, John Bauerfeld, director.
Detroit Bureau, Chris Sinsabaugh, editor, 427-8 Fisher Building, Detroit, Mich. Telephone Trinity 2-3500. Contributing editor, John C. Wetmore.

A Lesson in Greed

IN the picture of a gasoline dealer's sign which appears in this column there is a lesson that every man in the automotive industry and every man who owns a car or a truck should take to heart. It is a lesson in unbridled legislative greed. It is a lesson in the need for the entire automotive community — manufacturers, dealers and owners — joining forces to fight against being mulcted by stupid and greedy legislators, Federal, state and local.



THE SIGN shown above teaches a forceful lesson in legislative greed. It suggests to the automotive industry and community the need for fighting to end such conditions. The sign stands in front of a gasoline dealer's office at Decatur, Ala.

It will be observed from this sign that gasoline at this particular spot costs the motor vehicle operator 22 cents a gallon. The actual cost should be 10 cents a gallon. The other 12 cents is composed of four different tax levies, of which the Federal impost of 1 cent is the lowest. The state fuel tax in Alabama is 6 cents a gallon, the county imposes another 3 cents and the city of Decatur apparently demands a still further assessment of 2 cents.

The final result is that a product retailing for 10 cents per unit, in this case a gallon, carries a tax levy of 12 cents.

This is a fair warning as to what legislators will do almost everywhere unless they are checked. The only check for the average legislator whose fingers itch to get hold of more money to spend is a kick in the face administered at the polls. If the automotive industry and those who employ motor transportation intend ever to rid themselves of this incubus of taxation, the only way to do it is to go political, by which we mean organize for a united attack at the polls.

We might all of us profitably note the fact that when gasoline taxes reach a level high enough they just about defeat the obvious purpose for which they were passed, which is to provide funds for carrying on the state or local governments by which they were assessed. That most of these governments are not worth the money spent on them is beside the point for the moment. The fact is that such a tax as this total of 12 cents a gallon levied on gas opens wide the door for the bootlegger. The minute that the motor fuel tax in one community differs more than 2 cents from that of neighboring places, state or counties or what you will, the gasoline bootlegger gets busy. He can make money on this differential, carting his wares from low-tax territory into communities where it is high.

Do not think that this is mere theory. The Federal Oil Conservation Board in its report to the President of the United States last October said:

"Evasion of the tax is a serious problem, not only to the governments of the states in which the tax is evaded but to honest dealers who pay the tax. Evasion is a widespread practice, and the losses to the states, and consequent damage to honest dealers, have reached alarming proportions."

The present Secretary of the Interior, Harold L. Ickes, remarked on March 27, 1933:

"Widespread tax evasion, the illegal production and irregular distribution of unmarketable production, the failure or inability to enforce existing state statutes—all have had a tendency to break down the legitimate conservation programs of the various states. Evasion of both the Federal and state gasoline taxes has in itself unsettled the market for gasoline, the chief product of petroleum, the country over."

This question of gasoline taxes has been getting more and more annoying every year since Oregon made the first step back in 1919. The present economic situation has made necessary the levying of many taxes that are annoying and detrimental to general welfare. When revival once gets under way, tax removals and revisions downward will be the order of the day, and the automotive community should make a stern fight to see that this gas tax mulcting is ended.

ENGINE REBUILDERS TO HOLD MEETING IN CHICAGO JULY 10

(Continued from Page 1)

only have been open a month at the time of the convention.

Announcements and invitations are being mailed this week to approximately 3,000 members and invited guests, and those who plan on attending should make hotel reservations with the committee in Chicago at once.

INDIANAPOLIS REPORTS GENERAL BUSINESS LIFT

(Continued from Page 1)

salary increases announced by the Cord Corporation, stated that a noticeable increase, generally throughout the various American offices of Duesenberg, has been felt in the last few weeks. The plant, which has decreased its staff only a little in the last few years, he said, is reflecting a widespread feeling of stabilization.

James S. Watson, vice-president of the Link-Belt Company, said the increase in orders of the last few weeks has been very encouraging.

An increase of 50 per cent. in the staff of employees of the P. R. Mallory & Co., Inc., manufacturer of electrical motors and supplies, was reported at the plant. Approximately 900 persons now are in the employ of the company, the largest since 1929, according to Joseph E. Cain, treasurer. A day and night shift is operating on an eight-hour schedule. Salaries of employees were increased 12.5 on April 1, and a similar increase was granted on May 1, the treasurer said.

The F. J. Langsenkamp Company, coppersmiths and brass finishers, said that in the last month there has been more business than was noted by the company for the same period last year. Beer legalization was an influence.

The Marmon-Herrington Company revealed that a large order for motor trucks had been received from the war department and that some of the new equipment for the Iraq oil fields of the Orient would soon be ready for shipment.

From surrounding cities optimistic notes continued to trickle in. At Richmond day and night shifts will be employed for at least six weeks at the National Automatic Tool Company, it was said, with multiple drill orders from the Plymouth division of Chrysler providing the main stimulus.

Kokomo industry was said to be humming. The Continental Steel Corporation has increased production and received many new orders. The Reliance Manufacturing Company opened its new factory with employment for several hundred workers. A brisk gain in business led several industries, including the Haynes Stellite Company, to prepare exhibits for the world's fair at Chicago.

CHAPIN APPEALS FOR INCOME TAX RELIEF

Washington, May 15.—Roy D. Chapin, chairman of Hudson Motor Company, and former Secretary of Commerce, has petitioned the United States Board of Tax Appeals for relief from $1,574 of a $3,787 income tax deficiency for 1930. The Bureau of Internal Revenue levied on the tax dividends and other income received from a trust fund upon which the tax had been paid by the trustee, according to the contention. Petition showed that Mr. Chapin had ordinary net income of $261,144 for 1930.

AUTOMOBILES AND STEEL HOLD LEAD IN TRADE UPTURN

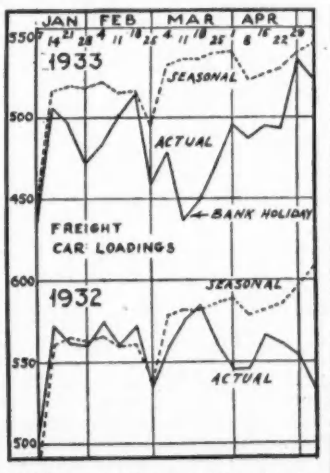
(Continued from Page 1)

corresponding levels of last year have been achieved by the steel and motor industries, the output of electricity pushed through the 1932 level in the first week of May, and freight car loadings during the past two weeks have been almost on a par with a year ago. Building contract awards continue sharply under twelve months ago.

STATISTICAL REVIEWS

Below are statistical reviews of these important industries, with their trends for 1933 to date, in comparison with what took place in the early months of last year. Also included is the history of the Merriman weekly index of business activity for the year to date, the components of which are freight car loadings, steel and auto production and building contracts.

The final revised number of the Merriman index for the week ended May 6 was 47.8, an increase of 0.2 over the 47.6 for the preceding week and 2.4 points above the 45.4 index number for the corresponding week of last year. All components except



freight car loadings registered gains over the preceding seven-day period, the building improvement having been but slight. This index is the work of Norman Merriman, economist.

The upturn in the index for the week ended May 6 was the seventh consecutive gain, and the number was above the like period of 1932 for the second consecutive seven-day period. Not at any previous time during the depression had the Merriman index crossed the line of the preceding year.

CAR LOADINGS TREND

The notable feature of the trend of freight car loadings thus far in 1933 has been sharp contrast with what happened, on a seasonal basis, in the first four months of last year. This contrast is clearly reflected in the accompanying chart.

It will be noted that traffic during the first two months of this year receded sharply over a period of several weeks from what it should have been on a seasonal basis and that it suffered a drastic contra-seasonal falling off during the bank holiday period.

In the corresponding periods of 1932 loadings held fairly closely to the seasonal line. The estimated normal seasonal loadings used in the chart are those computed by Standard Statistics Company.

Since the bank holiday, the rise in loadings this year has been exceedingly sharp, carrying the weekly totals back almost to where they would have been had a normal seasonal trend been followed since the first of the year. This narrowing of the gap, as shown on the chart, during April, was in direct contrast to what happened a year ago.

"The recent upturn in the steel industry has been perhaps the outstanding feature of the general business improvement. The industry last week operated at 31 per cent. of capacity, a rise of 17 points from 14 per cent. rate which prevailed in the week ended March 25.

For the past three weeks the rate has been above the corresponding period of last year, the first time during the depression that operations in steel have risen above the like weeks of the preceding year.

While the automobile industry has been the principal sustaining customer in the spring steel rise, recent improvement has been noted in demand from other customers.

Rate at which the steel industry has operated (Iron Age figures), week by week thus far in 1933, with the rate for the similar weeks of 1932, follow:

Week	1933	1932	1933 Change
January 4	14	24	—10
January 14	15	25	—10
January 21	16	28	—12
January 28	17	29	—12
February 4	19	26	— 7
February 11	19	27	— 8
February 18	20	27	— 7
February 25	19	26	— 7
March 4	17	26	— 9
March 11	15	27	—12
March 18	15	25	—10
March 25	14	25	—11
April 1	15	22	— 7
April 8	16½	22	— 5½
April 15	19¼	21	— 1¾
April 22	23	22½	+ ½
April 29	25	23	+ 2
May 6	29	24	+ 5
May 13	31	24	+ 7

Here's what has happened to the Iron Age composite, with a comparison with 1932:

Week	1933	1932	1933 Change
March 7	$6.82	$8.25	—$1.43
March 14	6.92	8.25	— 1.33
March 21	7.00	8.21	— 1.21
March 28	7.08	8.21	— 1.13
April 4	7.08	8.21	— 1.13
April 11	7.33	8.21	— 0.88
April 18	7.67	8.04	— 0.37
April 25	8.83	8.04	+ 0.79
May 2	9.25	7.62	+ 1.63
May 9	9.83	7.62	+ 2.21

ELECTRICITY PRODUCTION

The best way to show the improvement in the production of electricity thus far in 1933, when compared with 1932, is the following table, in which the week by week rate of change from a year ago is indicated for the different sections of the country:

Week Ended	Atlantic Seaboard	Central Industrial	Pacific Coast	All U. S.
May 6	+ 2.9	— 0.2	— 2.5	+ 0.2
Apr. 29	+ 1.9	— 4.2	— 1.3	— 1.6
Apr. 22	+ 0.1	— 3.6	— 6.4	— 2.5
Apr. 15	— 4.9	— 6.3	— 6.6	— 4.8
Apr. 8	— 2.7	— 5.7	— 6.8	— 4.5
Apr. 1	— 4.6	— 8.1	— 5.7	— 5.3
Mar. 25	— 4.3	—10.9	— 4.1	— 6.9
Mar. 18	— 8.2	—14.8	— 6.9	—10.6
Mar. 11	— 8.0	—14.4	— 5.8	— 9.6
Mar. 4	— 5.2	— 9.6	— 5.3	— 6.4
Feb. 25	— 4.1	— 9.4	— 5.4	— 5.7
Feb. 18	— 4.6	— 6.9	— 7.0	— 4.9
Feb. 11	— 4.2	— 6.5	— 8.4	— 6.1
Feb. 4	— 7.8	—11.0	— 8.8	— 8.4
Jan. 28	— 6.5	—10.9	— 5.2	— 7.8
Jan. 21	— 6.8	—10.8	— 2.0	— 7.1
Jan. 14	— 5.1	—10.4	— 4.5	— 6.7

The output of the automobile industry in the United States and Canada in recent weeks has been running around 50,000 units weekly, somewhat above the level of a year ago. The production for the first quarter of this year was almost on a par with that of the like period of 1932, and the estimated output for April indicated a gain over a year ago for that month. Indications are that May will be at least on a par with May, 1932, with theprospect for June not clear.

This is the first year of the depression in which the automobile industry has gotten well into the spring with its operations holding to the level of the preceding year.

The following tabe compares production of motor vehicles thus far in 1933 with that of last year:

	1933	1932	Per cent. change
January	133,402	123,675	+ 8.0
February	110,123	122,895	—10.0
March	125,224	127,279	— 1.6
April	*175,000	155,136	+13.0
	543,749	528,385	+ 3.0

*Estimated.

RESIDENCE BUILDING UP

While building has lagged somewhat behind other industries in picking up, the latest available figures on contract awards were encouraging in that residential activity showed signs of improvement.

Following is the course of the Merriman index thus far in 1933, with the 1932 trend also indicated:

Week	1933	1932	1933 Change
January 7	49.6	56.4	— 6.8
January 14	49.7	54.5	— 4.8
January 21	49.8	53.4	— 3.6
January 28	48.1	52.5	— 4.4
February 4	48.1	51.5	— 3.4
February 11	47.2	50.5	— 3.3
February 18	46.7	51.0	— 4.3
February 25	44.4	49.1	— 4.7
March 4	42.4	47.5	— 5.1
March 11	37.8	42.8	—10.4
March 18	36.6	48.0	—11.4
March 25	39.5	46.9	— 7.4
April 1	41.1	46.1	— 5.0
April 8	42.5	45.7	— 3.2
April 15	44.3	46.2	— 1.9
April 22	44.8	46.0	— 1.2
April 29	47.6	45.9	+ 1.7
May 6	47.8	45.4	+ 2.4

Production—Engineering—Factory

Edited by Herbert Chase

Foeinger Transmission Used In Austro Daimler Rail Cars

By E. KENT HOWE, JR.

For the transmission and gear reduction, the Austro Daimler rail cars use, for the first time as a stock feature, a hydraulic drive, with oil as the motive fluid. The problem of the efficiency ratio was successfully solved by a deft structural unification of a hydraulic coupling or clutch for direct drive and a hydraulic reducing gear for acceleration and uphill driving.

The new oil drive consists fundamentally of two structural groups. For the direct drive, which is sufficient in the case of single-unit high-speed rail cars (top speeds 65 to 90 miles per hour) for a grade up to 15 per mille, the conventional Foetinger clutch is used. This operates with an efficiency of 98 per cent.

For starting and uphill driving, the transmission is driven through a reducing gear, which consists of a centrifugal pump and an impeller fed by it. The efficiency of this arrangement is 85-86 per cent. The change from clutch to reducing gear takes place very easily by emptying the clutch or the reducing gear.

For driving on a reducing gear, an oil cooler is arranged in a suitable position to dissipate the waste heat.

In the case of slower-running local cars, it may be generally assumed that in direct drive the speed may be reduced sufficiently to be equivalent to about 60 per cent. of the high-speed rating of the vehicle. In case the vehicle runs slower than 60 per cent. under full load, the reducing gear is shifted into service.

Of course it is possible with all types to run even more slowly with the clutch on level track, if the full traction does not have to be developed. The shifting to the reduction gear will then be necessary only if a specially rapid acceleration is desired or if a hill is to be negotiated.

This type of transmission is not only the simplest as regards servicing, but also the most reliable. As it is extremely flexible, no toothed gearing is any longer used. The hydraulic transmission is far superior also to electrical power transmission, because of its high efficiency. It is characterized by an extremely gentle start and excellent responsiveness to all grade relations.

It is pre-eminently the extremely simple maintenance of the vehicle which is of special importance primarily for the railway operation. The clutch pedal and the gear shift lever are missing and only the throttle and brake controls are necessary to run the vehicle. Both of these are united in a handwheel, so that the motorman has to operate only a single control lever. Turning the lever to the left accelerates the vehicle by opening the throttle, while turning it to the right reduces the speed by actuating the brakes.

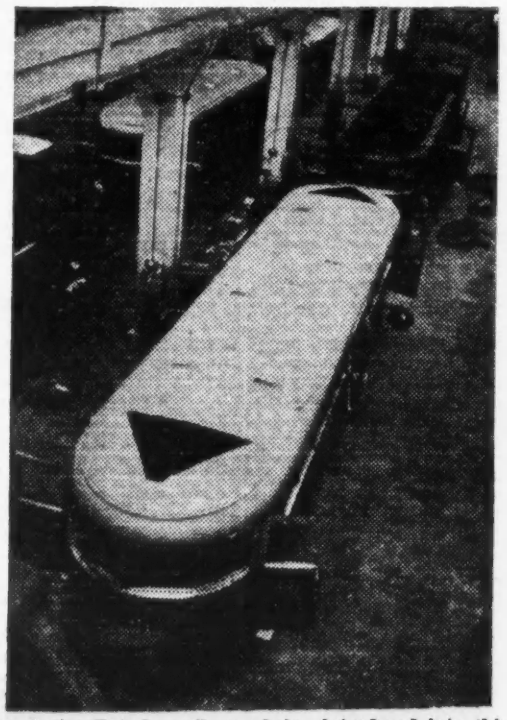
An important advantage of the new transmission also rests in the fact that in neither the clutch nor in the reducing gear can any wear occur, as only two moving parts—driven wheel and the driving wheel—are applied. They are not in mechanical connection with each other or with the housing. As there are also no stuffing boxes or other packings subject to wear, the mechanism runs without servicing.

Starting under load, the shift from reducing gear to clutch occurs naturally, entirely clash-free, an advantage which cannot be estimated highly enough, especially when operating with trailers in local and uphill driving.

From the standpoint of traffic engineering the unusually favorable acceleration which is possible through the uninterrupted reduction is of special interest. Not only the clutching and shifting intervals are eliminated, which are necessary in mechanical drive, but, by reason of the hydraulic reduction, the entire efficiency of the engine is utilized during the entire period of acceleration independently of the running speed.

The new transmission is advantageous in its effect upon the life of the engines, as their revolutions cannot be too suddenly increased either through the hydraulic reducer or by improper or reckless gas feeding above the normal rated capacity. It also does not make any difference in starting whether the throttles of the engines are operated carefully or carelessly.

The method of hydraulic reduction also makes possible increased safety in coasting down hill, as well as saving in fuel. This hydraulic coasting—obtained by means of pumping out the oil from the clutch and the reducing gear—is superior to mechanical coasting in security of operation and dangerless shifting. It forms no additional structural unit with special maintenance requirement, but results from the structure of the hydraulic mechanism itself.



One of the Austro Daimler rail cars being introduced into this country by E. K. Howe & Sons

A BRITISH METHOD OF HONING SPLINES

What is described by our British contemporary, The Automobile Engineer, as an ingenious method for honing internal splines has recently been evolved and patented by Messrs. Clement Talbot, London.

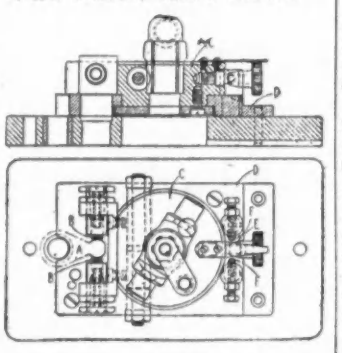


Fig. 1—The work-holding fixture

The honing tool employed is reciprocated vertically in the work which is moved backwards and forwards around its center axis at a speed that synchronizes with the reciprocating speed of the tool. In this way, as the tool comes down, the abrasive action is on on side of the splines, while during the return stroke the opposite sides come into contact with the abrasive sticks. In general, the number of the abrasive sticks corresponds to the number of splines in the work piece, although for a six-splined piece with a bore of under one inch in diameter, a tool having three abrasive sticks is employed. The abrasive sticks are held in slots in a tool, as shown in Fig. 2. They are kept in position by means of two spring rings, one above the stocks and one below that engage with extensions on the stick-holding shoes. A latch is fitted to allow the tool to be raised so that the fixture may be reloaded.

The machine is driven by belting, the reciprocating motion of the tool shank being given by a variable-stroke cam. Connection with the uppre part of the spindle is through the medium of a slipper block and link, the link connection being spring-loaded so as to avoid the possibility of any jar. On the shaft on which the variable stroke

(Continued on Page 6)

UNDER-SIZE RIMS CAUSE TIRE FAILURES

Many truck tire failures have been traced directly to tires being used on improper sizes of rims. To prove this fact the development department of the B. F. Goodrich Company tire division recently completed a test on a pair of six-inch ten-ply tires—one mounted on a five-inch rim and the other mounted on a six-inch rim. This test was conducted in the usual way, all conditions being equal except for the rim size.

Examination of the inside and outside of the tire used on a five-inch rim shows it is not only broken on the shoulder because of the excessive flexing of the tire on the narrow rim, but shows breaks above the rim flange also.

Examination of the second tire which was used on the six-inch rim showed no signs of failure after a test exactly similar to that which caused the failure of the first tire.

There is a lack of rim support when a tire is mounted on an undersized rim. Corresponding premature failures may also be expected in the larger sizes when used on undersized rims, according to Goodrich tire engineers, hence dealers and fleet operators should exert every effort to see that rims of proper size are used, if economical tire service is to be secured.

PROPERTIES OF CAST IRON OUTLINED

By H. BORNSTEEN
Deere & Company
(Abstract of a paper appearing in Metal Progress)

Cast irons are alloys of iron, carbon, and silicon, containing so much carbon (over 2 per cent.) that they are not ordinarily malleable, as cast, at any temperature. There are at least four common kinds, not including the special irons:

1. Pig iron, which is the product of the blast furnace and is either remelted and cast (producing gray or white iron) or it is refined in the steel-making processes.

2. White cast iron, which contains nearly all of the carbon in chemical combination with the iron. The presence of this iron carbide (cementite) makes the metal hard and brittle. White iron can be classed according to the process. It may be produced by adjusting the composition (as by a low silicon content) or by rapid cooling. Chilled cast iron is produced by casting the iron against metal chills; such iron when cast in sand molds may have a gray fracture, but the chills cause rapid cooling and retain cementite.

3. Malleable cast iron, which is the term applied to castings in which all the combined carbon of the white cast iron has been changed to free carbon (temper carbon) by suitable heat treatment.

4. Gray cast iron, which obtains its name from its characteristic gray fracture. Under the miscroscope it is found to contain very little free cementite. It is composed of ferrite, pearlite, steadite and graphitic carbon flakes. Structurally it is very complex, although it may be likened to a steel containing thousands of small graphite flakes. The matrix, or metal surrounding the flakes, is weakest when it is all ferrite and strongest when it is all pearlite. However, the strength of the metal is more affected by the quantity, size, shape, and distribution of the graphite than by any other factor.

In what follows I shall confine myself largely to the subject of gray cast iron.

It is difficult to set up a classification or a series of classifications for cast iron which would adequately cover the desired properties in the casting. In some cases, strength is the principal need, while in many others cast iron is selected for its hardness, wear resistance, resistance to shock, machinability, heat resistance, or corrosion resistance. Frequently the properties desired cannot be fully described in terms of test results, and control tests are specified.

Wherever possible, physical test properties should be specified instead of chemical composition. This recommendation is made because one foundry may use a certain range of composition to secure certian physical properties while another foundry would find it more convenient—due to differences in raw materials and melting practice—to obtain these physical properties with a different range of composition. It is considered undesirable to specify both physical properties and composition—except when alloys are specified to obtain properties not readily measurable.

The American Society for Testing Materials recently has developed "Tentative Specifications for Gray Iron Castings, A 48-32 T." where strength is a consideration. In these specifications gray iron castings are classed according to minimum tensile strength of test bars as shown in Table I.

TABLE I.

Class No.	Minimum Tensile Strength
20	20,000 lb. per sq. in.
25	25,000 " " " "
30	30,000 " " " "
35	35,000 " " " "
40	40,000 " " " "
50	50,000 " " " "
60	60,000 " " " "

In these specifications, transverse tests are optional. Three sizes of test bars are adopted in order to have one of them represent the thickness of casting being bought, as follows: a 7/8-inch bar (as cast) for castings with controlling sections 3/4 inch thick or less, a 1.2-inch bar for castings from 3/4 inch to 1.1 inch, and a 2-inch bar to represent metal in castings up to 2 inches.

In previous specifications, test bars were supposed to represent the

(Continued on Page 7)

PERTINENT POKES and PARRIES

By HERBERT CHASE, Engineering Editor ◆◆ BY READERS

Higher Fuel Economy

Although the advent of higher compression has done something toward improved fuel economy in passenger car engines, much has been sacrificed in miles per gallon by fitting engines which are more powerful and consequently none too economical at the low loads of average use. The net result is that the modern car consumes much more fuel than it should and that operating expense is correspondingly increased. Low fuel costs have offset this to some extent, but high fuel taxes are tending to counteract or wipe out this benefit, especially in some states where fuel taxes are grossly excessive.

It is sometimes said that car owners are not greatly interested in fuel economy, so long as performance in other respects is satisfactory, but there are grave reasons for doubting this, especially under present economic conditions. There are, in fact, many cases in which cars known to have moderate fuel consumption have a distinct advantage over competing cars in the same class that are less economical in fuel.

To gain high ecenomy it is not necessary to decrease engine size or power output of an engine or to sacrifice general performance, though much can be gained by using a smaller engine without changing the power-weight ratio. It is quite possible, for example, to decrease the weight of the car and at the same time streamline it so that a smaller engine will make its performance better in every way, fuel economy included. It is also possible to use a type of engine having higher economy at low load. Ordinary throttling engines are decidedly inefficient at low loads. Fuel injection or some equivalent might be used to advantage in some and thus gain much in economy at low load without decreasing maximum output.

American motorists want cars that perform well, perhaps even with some sacrifice in economy, but when both high economy and excellent performance in other respects are possible, both should be made available. If readers have any comments to make on this subject, especially as to ways in which fuel economy can be increased without sacrifice in other directions, we shall be pleased to have their views.

PASSENGER CAR EQUIPMENT AND ACCESSORIES

NAME AND MODEL	Speedometer	Clock	Fuel Gauge	Lock	Spark Plugs	Battery	Heat Indicator	Cig. Lighter	Hardware Make	Non-Shat. Glass: Windshield	Non-Shat. Glass: Throughout	Horns Make & No.	Adjustable Seats	Trunk Rack	Trunk	Ventilating Systems	Wired for Radio	Spring Covers	Shock Absorbers: Make	Shock Absorbers: One or Two Way	Shock Absorbers: Ride Control	Wheels	
Auburn 8-101	Ste	$	K-S	Ele	Cha	USL	Ste	Cas	Dev	LOF	—	Kla	Yes	C	$	—	$	And $	Del	2	No	MW	Wo
Auburn 8-105	Ste	$	K-S	Ele	Cha	USL	Ste	Cas	Dev	LOF	—	Kla	Yes	Yes	$	—	$	And	Del	2	No	MW	Wo
Auburn 12-161	Ste	Borg	K-S	Ele	Cha	USL	Ste	Cas	Dev	LOF	—	Kla	Yes	Yes	$	—	$	And $	Hou	2	Aut	MW	Wo
Auburn 12-165	Ste	Borg	K-S	Ele	Cha	USL	Ste	Cas	Dev	LOF	—	Kla	Yes	Yes	$	—	$	And	Hou	2	Aut	MW	Wo
Austin	NE	$	K-S	Aut-L	Cha	USL	$	$	—	$	—	EA-1	No	No	$	—	No	No	Own	1	No	—	Di
Buick 33-50	AC	$	AC	Oak	AC	DR	AC	Cas	Tern	LOF	—	Kla-2	Yes	No	¶¶	Fish	Yes	And $	Del	1	Iner	KH	¶
Buick 33-60	AC	$	AC	Oak	AC	DR	AC	Cas	Tern	LOF	—	Kla-2	Yes	No	¶¶	Fish	Yes	And	Del	2	Iner	KH	¶
Buick 33-80	AC	$	AC	Oak	AC	DR	AC	Cas	Tern	LOF	—	Kla-2	Yes	No	¶¶	Fish	Yes	And	Del	2	Iner	KH	¶
Buick 33-90	AC	$	AC	Oak	AC	DR	AC	Cas	Tern	LOF	—	Kla-2	Yes	No	¶¶	Fish	Yes	And	Del	2	Iner	KH	¶
Cadillac V-8	AC	Jag	AC	DR	AC	DR	AC	Cas	Tern	LOF	LOF	Kla	—	—	—	Fish	—	And	Del	2	Iner	KH	Wi
Cadillac V-12	AC	Jag	AC	DR	AC	DR	AC	Cas	Tern	LOF	LOF	Kla	—	—	—	Fish	—	And	Del	2	Iner	KH	Wi
Cadillac V-16	AC	Jag	AC	DR	AC	DR	AC	Cas	Tern	LOF	LOF	Kla	—	—	—	Fish	—	And	Del	2	Iner	KH	Wi
Chevrolet Master 6	AC	$	AC	DR	AC	DR	AC	$	Tern	LOF	—	Kla	Yes	$	$	Fish	Yes	$	Del	1	No	KH	Wi
Chevrolet Standard 6	—	—	—	—	AC	DR	—	—	Tern	Yes	$	—	Yes	—	—	Fish	—	—	Del	1	No	—	Wi
Chrysler 6	AC	$	Mot-M	DR	AC	Wil	Mot-M	Yes	—	Pitts	$	Kla	Yes	CS	CS	—	—	And $	Del	1	No	MW	Wi
Chrysler Royal 8	AC	$	Mot-M	DR	AC	Wil	Mot-M	Yes	—	Pitts	$	Kla	Yes	CS	CS	—	—	And	Del	1	No	MW	Wi
Chrysler Imperial 8	AC	$	Mot-M	DR	AC	Wil	Mot-M	Yes	—	Pitts	$	Kla	Yes	CS	CS	—	—	And	Del	2	No	MW	Wi
Chrysler Imp. Cust. 8	AC	Wal	Mot-M	DR	AC	Wil	Mot-M	Cas	—	Pitts	Yes	Kla	Yes	$	$	—	—	And	Hou	2	Man	MW	Wi
Continental Beacon	AC	$	K-S	Aut-L	AC	USL	Mot-M	$	—	**	$	Sche	—	—	—	—	—	—	—	—	—	—	Wi
Continental Flyer	AC	$	K-S	Aut-L	AC	USL	Mot-M	$	—	**	$	Sche	—	—	—	—	—	—	—	—	—	—	Wi
Continental Ace	Ste	$	Mot-M	Aut-L	AC	Nat	Mot-M	$	—	**	$	Sche	—	—	—	—	—	—	Hou	2	No	—	Wi
De Soto Six	AC	$	Mot-M	DR	AC	Wil	Mot-M	Cas	—	Pitts	$	Kla-2	Yes	$	$	—	Yes	$	Del	1	No	MW	Wo
Dodge 6	AC	$	Mot-M	DR	AC	Wil	Mot-M	Cas	—	Pitts	$	Kla	Yes	—	—	—	Yes	And	Del	1	No	MW	Wo
Dodge 8	AC	$	Mot-M	DR	AC	Wil	Mot-M	Cas	—	Pitts	$	Kla	Yes	—	—	—	Yes	And	Del	2	No	MW	Wo
Essex Terraplane 6	Wal	$	Mot-M	Ele	Cha	Nat	K-S	$	Dura	Pitts	$	EA	Yes	No	No	Own	Yes	No	Mon	2	No	MW	Wi
Essex Terraplane 8	Wal	$	Mot-M	Ele	Cha	Nat	K-S	$	Dura	Pitts	$	EA	Yes	$	$	Own	Yes	No	Mon	2	No	MW	Wi
Ford 4 Model 46	Var	$	K-S	Hurd	Cha	Own	$	$	Own	**	—	Var	Yes	$	—	—	Yes	No	Hou	2	Aut	Own	Wi
Ford V-8 Model 40	Var	$	K-S	Hurd	Cha	Var	$	$	Own	**	—	Var	Yes	$	—	—	Yes	No	Hou	2	Aut	Own	Wi
Franklin Olympic 6	Ste	None	K-S	Yale	Cha	Wil	None	Cas	Dura	LOF	—	Kla	Yes	No	No	—	No	No	Del	2	No	MW	Wi
Franklin 6	NE	Borg	K-S	Yale	Cha	Nat	None	Cas	Dura	LOF	LOF	Kla	Yes	No	No	—	No	No	Del	2	Man	MW	Wo
Franklin 12	NE	Borg	K-S	Yale	Cha	Wil	None	Cas	Dura	LOF	LOF	Kla	Yes	No	No	—	No	And	Del	2	Man	MW	Wo
Graham Standard 6	AC	$	K-S	DR	Cha	Wil	K-S	$	Dura	LOF	—	Kla	Yes	—	—	$	No	No	Del	1	No	MW	¶
Graham Standard 8	AC	$	K-S	DR	Cha	Wil	K-S	$	Dura	LOF	—	Kla	Yes	—	—	$	No	No	Del	1	No	MW	¶
Graham Custom 8	AC	$	K-S	DR	Cha	Wil	K-S	$	Dura	LOF	LOF	Kla	Yes	—	—	$	No	No	Del	1	No	MW	¶
Hudson Super 6	Ste	$	Mot-M	Ele	Cha	Ex	Mot-M	$	Dura	Pitts	$	EA	Yes	$	$	Dole	Yes	No	Mon	2	No	MW	Wi
Hudson 8	Ste	$	Mot-M	Ele	Cha	Ex	Mot-M	$	Dura	$	—	EA	Yes	$	$	Own	—	No	Gab	2	Man	MW	Wi
Hupmobile 321	Ste	$	Ste	Ele	Cha	Wil	Ste	$	Dev	Pitts $	$	Spa	—	No	No	—	Yes	None	Gab	2	Aut	MW	¶
Hupmobile 322	Ste	$	Ste	Ele	Cha	Wil	Ste	None	Dev	Pitts	$	Spa	—	No	No	—	Yes	None	Gab	2	Aut	MW	¶
Hupmobile 326	Ste	$	Ste	Ele	Cha	Wil	Ste	Cas	Dev	Pitts	Pitts	Spa	—	No	No	—	Yes	B&S	Gab	2	Aut	MW	¶
La Salle V-8	AC	Jag	AC	DR	AC	DR	AC	Cas	Tern	LOF	LOF	Kla-2	—	—	—	Fish	—	And	Del	2	Iner	KH	Wi
Lincoln V-12	Wal	Wal	K-S	Oak	Cha	Ex	K-S	Cas	—	**	**	Spa-2	Yes	Own	Yes	No	Yes	And	Hou	2	Aut	KH	SS
Lincoln V-12	Wal	Wal	K-S	Oak	Cha	Ex	K-S	Cas	—	**	**	Spa-2	Yes	Own	Yes	No	Yes	And	Hou	2	Aut	KH	SS
Marmon 16	AC	Jag	AC	DR	Cha	Ex	AC	Cas	Tern	Pitts	LOF	Spa-2	Yes	Yes	—	—	No	And	Hou	2	*	MW	Wi
Nash 6	Ste	$	K-S	Aut-L	AC	USL	K-S	$	Var	Pitts	$	Spa	—	—	—	—	Yes	Yes $	Gab	2	Aut	MW	¶
Nash Standard 8	Ste	$	K-S	Aut-L	AC	USL	K-S	$	Var	Pitts	$	Spa	—	—	—	—	Yes	Yes $	Gab	2	Aut	MW	¶
Nash Special 8	Ste	$	K-S	Oak	AC	USL	K-S	$	Var	Pitts	$	Spa	—	CS	—	—	Yes	Yes $	Del	1	Man	MW	¶
Nash Ad. Twin Ign. 8	Ste	$	K-S	DR	AC	USL	Ste	$	Var	Pitts	$	Spa	—	CS	—	—	Yes	Yes $	Del	2	Man	MW	¶
Nash Am. Twin Ign. 8	Ste	Borg	K-S	DR	AC	Ex	Ste	Cas	Var	Pitts	$	Spa	—	CS	—	—	Yes	Yes $	Del	2	Man	MW	¶
Oldsmobile 6	AC	None	AC	DR	AC	DR	AC	None	Tern	LOF	—	Kla-1	Yes	No	—	Fish	Yes	And	Del	2	No	K-H	St
Oldsmobile 8	AC	None	AC	DR	AC	DR	AC	None	Tern	LOF	—	Kla-1	Yes	No	—	Fish	Yes	And	Del	2	No	K-H	St
Paskard 8	NE	2	Mot-M	NE	AC	Pre	K-S	Cas	—	LOF	LOF	Spa	Yes	—	—	Own	Yes	Own	Del	2	Man	MW	Wi
Packard Super 8	NE	2	Mot-M	NE	AC	Pre	K-S	Cas	—	LOF	LOF	Spa	Yes	—	—	Own	Yes	Own	Del	2	Man	MW	Wi
Packard 12	Wal	—	Mot-M	NE	AC	Pre	K-S	Cas	—	LOF	LOF	Spa	Yes	—	—	Own	Yes	Own	Del	2	Man	MW	Wi
Pierce-Arrow 836	NE	Borg	K-S	Oak	Cha	Wil	K-S	Cas	Dura	Pitts	Pitts	EA	Yes	Yes	—	—	Yes	And	Del	2	No	KH	Wo
Pierce-Arrow 1236	NE	Borg	K-S	Oak	Cha	Wil	K-S	Cas	Dura	Pitts	Pitts	EA	Yes	Yes	—	—	Yes	And	Del	2	No	KH	Wi
Pierce-Arrow 1242-7	NE	Borg	K-S	Oak	Cha	Wil	K-S	Cas	Dura	Pitts	Pitts	Kla	Yes	Yes	—	—	Yes	And	Del	2	Yes	KH	Wi
Plymouth 6	AC	—	Mot-M	DR	AC	Wil	—	—	—	Pitts	—	Kla	Yes	—	—	—	Yes	No	Del	1	No	Bu	Wi
Pontiac Straight 8	AC	None	AC	DR	AC	DR	AC	None	Tern	LOF	—	Kla	Yes	No	—	Fish	Yes	$	Del	1	No	KH	Wi
Reo Flying Cloud	—	No	K-S	DR	Cha	Wil	K-S	Cas	—	**	—	Kla	Yes	—	—	—	No	No	Del	2	No	MW	Wi
Reo Royale	—	No	K-S	DR	Cha	Wil	AC	Cas	—	**	—	Kla	Yes	—	—	—	Yes	And	Del	2	No	MW	Wi
Rockne Six Model 10	Ste	—	K-S	Aut-L	Cha	Wil	K-S	—	Han	**	—	Spa-1	—	$	—	—	Yes	And	Del	1	No	††	††
Studebaker 6	Ste	None	AC	DR	Cha	Wil	Ste	None	Var	**	**	Spa	Yes	R	—	—	Yes	And	Hou	2	Aut	Bu	SS
Studebaker Com. 8	Ste	None	AC	DR	Cha	Wil	Ste	None	Var	**	**	Spa	Yes	R	—	—	Yes	And	Hou	2	Aut	Bu	SS
Studebaker President 8	Ste	Borg	AC	DR	Cha	Wil	Ste	Var	Var	**	**	Spa	Yes	R	—	—	Yes	And	Hou	2	Aut	Bu	SS
Studebaker Spd. Pres. 8	Ste	Borg	AC	DR	Cha	Wil	Ste	Var	Var	**	**	Spa	Yes	S	—	—	Yes	And	Hou	2	Aut	Bu	SS
Stutz LAA	Ste	Wal	Ste	DR	Cha	Pre	Mot-M	Cas	Tern	Pitts	Pitts	Kla	—	—	—	—	—	No	Gab	2	Aut	MW	Wo
Stutz SV-16	Ste	Borg	Ste	Oak	Cha	Pre	Ste	—	Tern	Pitts	Pitts	Kla	—	—	—	—	—	No	Gab	2	Aut	MW	Wo
Stutz DV-32	Ste	Borg	Ste	Oak	Cha	Pre	Ste	—	Tern	Pitts	Pitts	Kla	—	—	—	—	—	No	Gab	2	Aut	MW	Wo
Willys 77	NE	$	Mot-M	Aut-L	Cha	USL	$	—	Var	$	—	Sch	—	No	No	—	No	No	Mon	1	No	KH	Di
Willys 99	NE	—	Mot-M	Aut-L	Cha	USL	Mot-M	No	Var	LOF	—	Sch	—	No	No	—	Yes	No	—	—	No	KH	Di

KEY TO SYMBOLS AND ABBREVIATIONS

Speedometer—Ste, Stewart-Warner Corp.; NE, Delco Appliance Corp.; AC, AC Spark Plug Company; Wal, Waltham Watch Company; Var, various makes.

Clock—Borg, G. W. Borg Corp.; Jag, Jager Watch Company; Wal, Waltham Watch Company.

Fuel Gauge—K-S, King-Seeley Corp.; AC, AC Spark Plug Company; Mot-M, Moto Meter Gauge and Equipment Corp.; Ste, Stewart-Warner Corp.

Lock—Ele, Electrolock-Mitchell Specialty Company; Aut-L, Electric Auto-Lite Corp.; Oak, Oakes Products Corp.; DR, Delco Remy Corp.; Hurd, Hurd Lock Company; Yale, Yale & Towne Mfg. Company; NE, Delco Appliance Corp.

Spark Plugs—Cha, Champion Spark Plug Company; AC, AC Spark Plug Company.

Battery—USL, USL Battery Corp.; DR, Delco Remy Corp.; Wil, Willard Storage Battery Company; Nat, National Lead Battery Company; Var, various makes; Ex, Electric Storage Battery Company; Pre, Prest-O-Lite Company.

Heat Indicator—Ste, Stewart Warner Corp.; AC, AC Spark Plug Company; Mot-M, Moto Meter Gauge and Equipment Corp.; K-S, King-Seeley Corp.

Cigar Lighter—Cas, Casco Products Corp.; Var, various makes; Cuno, Cuno Engineering Co.

Hardware Make—Dev, Deveraux-Keeler Brass Company; Tern, Ternstedt Mfg. Company; Dura, Dura Products Mfg. Company; Var, various makes; Han, Hancock.

Non-Shatterable Glass—

Windshields — LOF, Libbey-Owens-Ford; Pitts, Pittsburgh Plate Glass Corp. **Using both Libby-Owens-Ford and Pittsburgh.

Horns—Kla, Klaxon, Delco Remy Corp.; EA, EA Laboratories; Sch, Schwarze Electric Company; Spa, Sparton, Sparks Withington; Var, various makes.

Ventilating Systems—Fish, Fisher Body Corp.; Dole, Dole Valve Company.

Spring Covers—And, Andersen Mfg. Company; B&S, Briggs & Stratton.

Shock Absorbers—Del, Delco Products Corp.; Hou, Houde Engineering Corp.; Mon, Monroe Auto Equipment Company; Gab, Gabriel Company.

Ride Control—Aut, Automatic; Iner, Inertia; Man, Manual; *Marmon 16, manual rear, automatic front.

Wheels—MW, Motor Wheel Corp.; K-H, Kelsey-Hayes Wheel Corp.; Day, Dayton Wire Wheel Corp.; Bu, Budd Wheel Company; Wo, Wood; Wi, Wire; SS, Steel Spoke Artillery; St, Steel Spoke; Di, Disc. ††Rockne equipped with Kelsey-Hayes wire. Budd steel spoke optional at extra cost.

Symbols—C, coupe; CS, convertible sedan; $, extra equipment at additional cost; R, Regal models only; S, State models only; ¶Wire or wood wheels optional; ¶¶ Built-in trunk is standard on 5-pass. Victoria coupes on 50, 60 and 80 series and Club sedan on the 90 series.

A BRITISH METHOD OF HONING SPLINES

(Continued from Page 5)

cam is mounted there is a further cam for operating the to-and-fro motion of the work-holding fixture. This cam actually takes the form of two semi-circular pieces suitably bevelled so that, as the shaft revolves, a ball-headed lever arranged between the two halves of the cam is pushed to and fro.

The ball-headed lever is keyed to the upper end of a shaft that passes down to the work-holding fixture. It has at its lower end a small crank which, when the machine is in operation, moves backward and forwards through a small angle. Fig. 1 shows the work-holding fixture. Two spring-loaded stop pieces, B, engage with either side of the crank lever, A, and the upper part of the work-holding fixture, C, is free to

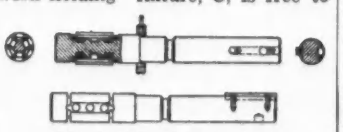


Fig. 2—The honing tool

revolve slightly in the lower portion, D. Stop pieces, B, are, of course, secured to the upper part of the work-holding fixture, C, and move with it. In this way the motion of the crank causes the upper part of the work-holding device to move backwards and forwards about its vertical axis. A recess is provided to hold the work piece which is gripped to hold the work piece which is gripped by means of a knurled screw.

At the opposite side of the work-holding fixture to the vertical shaft is the arrangement that determines the amount that shall be taken from the splines. This consists of a conical nut, E, the opposite sides of the cone being engaged by two set-screws, F.

There is a certain amount of clearance that depends upon the amount of cut which is to be applied, and as the upper part of the fixture turns to and fro the two set-screws come in turn into engagement with opposite sides of the cone. If the conical piece E is screwed toward the work, there will be less clearance between the set-screws, hence the amount of travel of the upper part of the fixture will be decreased. The conical nut is held on a stud held in the body of the device, while the set-screws are mounted in pieces that engage with the base.

The speed of the upper shaft of the machine is about 115 r. p. m., which gives, of course, 115 double strokes to the honing tool per minute, and the time of operation varies between 5 minutes and 15 minutes, depending upon how much stock is to be removed. There is a counter on the reciprocating shaft so that the actual strokes given to any particular work piece may be determined. In the arrangement shown in Fig. 1 a gauge is employed to locate the work in position.

REPORTS NAME CHANGE

Detroit, Mich., May 15.—Christian Products Company, 315 Orleans St., manufacturer of automobile accessories, has changed its name to Autocraft Corporation.

GETTING THE TARDY CUSTOMER TO PAY

(Continued from Page 3)

forceful as the series approaches the end: "Do we, or do we not? In other words, shall we adjust your bill amicably, or shall it be the other thing? There are two choices—your check for the amount of your long overdue bill, $....., or a plan which will assure us that this bill is to be paid. We prefer the check."

In number nine of the series an even stronger tone is used: "This note requires an answer by return mail. Do you intend to pay your bill which is now ..... months overdue? The amount is $..... Remember, please, by RETURN MAIL."

And then the last of the series delivers the ultimatum in the following words: "Unless we receive your check on or before (date) our attorneys will receive instructions to summon you to court. The amount of the claim is $....."

MOVES SHOWROOM

Syracuse, N. Y., May 15.—The H. L. Johnson Motor Sales, Inc., Hudson-Essex distributor, has removed its salesroom and service station to larger quarters at 737 West Genesee St.

PROPERTIES OF CAST IRON OUTLINED

(Continued from Page 5)

metal in the ladle, but it has been realized for a number of years that this viewpoint was unsatisfactory. The engineer is interested in the metal in the casting and not in the metal in the ladle. It is realized that it is frequently difficult to determine the size of the "controlling section." Comparative hardness tests of casting and test bar may be of value in this connection.

Furthermore the problem of internal stress arises. The effective strength of a casting is the difference between the ultimate strength of the material and the internal stress. Sound design and good foundry practice are necessary to keep these stresses at a minimum. By making the test on the casting whenever possible and comparing it with the test on the bar gives a good idea of the value of the test bar for that particular casting.

In one case hardness tests were of great value in determining the strength of castings. A casting used as a structural part where strength was important, showed some failures in service tests. A large number of castings, including the failed ones were checked, and a definite relationship between hardness and the transverse and tensile strengths was found. We were then able to set a minimum Brinell hardness value and test all castings in production, which has eliminated the trouble.

Hardness of the casting frequently is used as a guide to strength, machinability, or wear resistance. However, it is impropert to classify by hardness alone.

The structure of a casting as shown under the microscope gives a good indication of physical properties. Care should be taken in selecting the samples to represent the casting. It is possible that classification of cast irons may be made on the basis of structure.

Cast iron is widely used in the engineering and allied industries because of the ease with which it may be cast sound. Its low cost and wide range of physical properties are also of greatest importance.

Tensile strength is regarded as one of the most important properties. Where tests are correctly made, the results are reliable and comparable. The tensile strength may readily be controlled within desired limits. Cast irons range from less than 20,000-pound per square inch for soft, weak iron to over 60,000 pounds per square inch for some of the high strength irons, especially if alloyed.

Compressed strength of cast iron is usually several times the tensile strength and ranges from about 60,000 to over 150,000 pounds per square inch.

Endurance limit ranges from 40 to 55 per cent. of the tensile strength, depending upon the type of the cast iron.

Elastice Properties. Gray iron does not exactly follow Hooke's law (that the stretch is proportional to the load, within the elastic limit). Hence the modulus of elasticity is not a constant ratio, but ranges from 12,000,000 for the weaker irons to over 18,000,00 for the higher strength irons. There is no well defined elastic limit, and the above figures are properly taken at a load equal to 25 per cent. of the ultimate strength. Gray irons can sustain static loads indefinitely up to 80 per cent. or more of their ultimate tensile streigth.

Transverse test for strength and deflection is the most commonly used test for cast iron. Its principal utility is for foundry control rather than for design strength.

Impact resistance is a measurable property and depends largely on the form and quantity of graphite. There is no standard test yet adopted, but a committee of the American Society for Testing Materials has been working on this problem for several years and has made thousands of tests covering a wide range of irons.

Wear resistance is most important for various types of service. Gray iron is exceptionally free from any tendency to gall and seize, due to the self-lubricating action of the graphite flakes. Where resistance to severe abrasion is required, the hardness of the white or chilled iron is a desirable property. The properties in gray cast iron which are associated with a low rate of wear are pearlitic matrix, high hardness, and high strength. Other things being equal, an iron with a pearlite matrix will resist wear better than one containing free ferrite in the microstructure.

Comparing dissimilar irons, hardness does not have any relation to wear. However, for the same type of iron higher hardness frequently results in much lower rate of wear. Thus, for tractor cylinders, an increase of from 30 to 50 points in Brinell hardness proved very beneficial; the increased hardness and wear resistance were obtained by adding nickel and chromium in the ladle. There was no change in the machinability of the iron.

Hardness can be controlled within certain limits by the method of manufacture, composition of the iron, and rate of solidification of the casting. A wide range of hardnesses is to be had by heat treatments, ranging from slightly over 100 Brinell for fully annealed cast irons to over 600 for certain chilled and heat treated iron castings.

Corrosion. Special corrosion resistance may be induced by adding alloys and by the method of manufacture. A dense grain structure is of value. Chromium, nickel-chromium, copper, copper-molybdenum, and silicon have important effects. An austenitic iron containing about 15 per cent. nickel and 2.5 per cent. chromium has high resistance to many acids and alkalis. Other corrosion-resistant alloys contain 18 to 30 per cent. chromium, with or without 8 to 11 per cent. nickel. Silicon in the amount of 11 to 17 per cent. gives great corrosion resistance, particularly toward acids.

Heat Resistance. Ordinarly cast iron retains its strength (as determined by short time tests) up to 850 deg. F. When gray iron is repeatedly heated above 700 deg. F. it increases in size, which increase is permanent and more or less in proportion to the number of heatings and the temperature. Fine grained irons with more stable carbides are more resistant to such growth. Elements that tend to stabilize carbides retard growth.

Chromium, nickel - chromium, molybdenum, and silicon have been of value for improving the heat resistance. For temperatures up to 1800 deg. F. cast irons containing 14 to 30 per cent. chromium are useful.

Machinability is a most important property of cast iron and is not readily measurable. One shop may consider an iron machinable while the next shop will find it unsatisfactory. Machinability ranges are wide and cast irons may be made to suit any condition, remembering that ease in machining is usually inversely proportional to the strength of the casting. Additions of alloys such as nickel, chromium or molybdenum have specific effects, as do also chilling and heat treatment.

Mass Effect. Mechanical properties such as tensile strength, transverse strength, endurance limit and hardness vary considerably with change in section. An iron which may be very soft and easily machinable when poured into a heavy casting may be quite hard and difficult to machine in a light casting. Hence the composition must be adjusted for the size of section.

This difference in physical properties is greater for the lower-strength irons than for the higher-strength irons.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

SELLING DEALERS ON THEIR OWN ABILITY TO SELL

(Continued from Page 3)

the ratio. In the eighth column we have the total number of sales made for the week, and a break down of the ratio to appraisals. Now, you will note this chart shows in a very comprehensive way the aggressiveness of the go-getter and the reason for the failure of your weaker salesmen, and if you will incorporate this system in your retail operation you will find it the balance sheet to make your diagnosis as to why you are not getting your share of the available new or used car business in your community.

FROZEN ASSETS

Frozen assets are a great handicap to a dealer organization. These frozen assets can be made liquid, but it will necessitate the co-operation of every dealer operating out of this branch. When returning back to your place of business take a complete inventory of all obsolescents in the way of parts you have on hand, if any 1932 new car models, and a list of your used car inventory. If you will send to us this information we in return will make as many copies as we have dealers and forward same to each dealer. There are a good many old cars still running on our highways today and in many instances we are confronted with the problem of securing parts for these obsolete models, and in those cases we can help you liquidate parts obsolescent through the co-operation of each dealer purchasing from his fellow dealer those parts that may be in stock. The same things hold true if you have any 1932 models still on hand. Every now and then a dealer has the opportunity of selling an earlier model, and quite frequently a used car prospect will call in your used car department asking if you have a certain make, year, and body style in stock. In this case the inventory list of the various dealers being on hand will enable the associated dealer to assist his fellow merchant in cutting down the used car inventory of which he can derive profit.

SERVICE

This is the department that has caused us much to be concerned about, but then what have we done to hold a business we have created? How many dealers are struggling to sell the kind of service that they think the prospect ought to buy, rather than the kind the prospect really wants?

Getting service while the getting is good. One-third of 1933's maintenance will be sold in April, May and June. Here we have the seasonal distribution of months for the year:

January	5 5/10
February	4 8/10
March	7 8/10
April	10 4/10
May	11 3/10
June	11 2/10
July	8 7/10
August	8 6/10
September	8 6/10
October	9
November	7 9/10
December	6 5/10

This gives you a service expenditure breakdown, and from these figures you may get some idea as to the basis of guidance for your service sales expectations.

(To Be Continued)

CRUDE OIL PRICES

Houston, Tex., May 15. — The Humble Oil and Refining Company, largest purchaser of East Texas crude oil, yesterday posted a price of 25 cents a barrel in that field.

Ten Passenger Car Sales Leaders for April-March, 1933

Returns for today: Florida, Kansas, Maryland, Michigan, Minnesota, New Hampshire, North Carolina, So. Carolina, South Dakota, Utah, Vermont, Virginia, West Virginia and District of Columbia

In this table, 17 states and the District of Columbia

APR., 1933 States	Sales	FIRST		SECOND		THIRD		FOURTH		FIFTH		SIXTH		SEVENTH		EIGHTH		NINTH		TENTH	
Delaware	382	Chev	148	Ford	83	P-Po	37	Essex	20	Buick	16	Olds	13	De Soto	5	Nash	4	Ca-Ch-RoS	3	Willys	2
Illinois	8132	Chev	2310	Ford	1727	Ply	1064	Pontiac	603	Buick	358	Dodge	355	Olds	343	De Soto	180	Chrysler	170	Essex	143
Florida	1165	Ford	357	Chev	343	Ply	111	Austin	104	Pontiac	56	Dodge	43	Buick	33	Essex	21	Willys	17	Chrysler	16
Kansas	521	Chev	210	Ford	127	Ply	57	Pontiac	30	Dodge	16	Essex	14	Buick	11	O-R	8	DS-Hu	6	S-W	5
Maryl'd	1549	Chev	562	Ford	289	Ply	198	Pontiac	112	Dodge	59	Chrysler	53	Buick	49	Olds	43	Essex	29	DS-R	21
Mich.	4365	Ford	1516	Chev	1044	Ply	413	Pontiac	316	Dodge	303	Olds	139	Essex	131	Buick	99	Chrysler	71	Rockne	50
Minn.	2184	Chev	864	Ford	470	Ply	255	Pontiac	108	Dodge	79	Buick	63	Olds	49	Rockne	33	Essex	32	Stude	29
N. Hamp.	684	Chev	214	Ford	159	Ply	82	Pontiac	45	Essex	30	Dodge	29	Buick	27	Rockne	18	Olds	16	Chrysler	12
N. C.	1601	Chev	666	Ford	370	Ply	218	Pontiac	91	Essex	46	Dodge	44	B-Ch	29	Austin	26	Olds	21	Rockne	13
N. Dakota	377	Chev	168	Ford	83	Ply	44	Pontiac	34	Dodge	9	Olds	8	Rockne	7	E-S	5	Buick	4	Willys	3
S. C.	837	Chev	390	Ford	198	Ply	88	Pontiac	42	Austin	28	Dodge	21	Essex	18	Chrysler	9	Buick	8	Olds	7
S. Dakota	171	Chev	70	Ford	38	Ply	26	Pontiac	11	Rockne	6	B-D	3	Ch-G	2	*	1				
Utah	380	Chev	116	Ply	82	Ford	72	Pontiac	20	Dodge	16	Essex	14	B-O	11	De Soto	6	Ch-G-N	5	S-W	4
Vermont	348	Chev	85	Ford	73	Ply	53	Pontiac	36	Buick	19	Dodge	17	Ch-E	11	Olds	9	De Soto	6	Hudson	5
Virginia	1298	Chev	480	Ford	297	Ply	170	Pontiac	83	Dodge	66	Buick	33	Chrysler	31	Essex	28	Olds	26	Rockne	18
W. Va.	1084	Chev	361	Ford	264	Ply	153	Dodge	85	Pontiac	47	Chrysler	28	Essex	25	B-O	21	De Soto	12	Nash	10
Wis.	2834	Chev	860	Ford	576	Ply	348	Pontiac	236	Dodge	163	Olds	103	Buick	89	Essex	74	Ch-N	55	Rockne	54
D. of C.	1240	Chev	406	Ford	301	Pontiac	99	Ply	92	Buick	47	Dodge	45	Olds	34	Stude	30	Ch-E	28	De Soto	18

MARCH, '33 States	Sales	FIRST		SECOND		THIRD		FOURTH		FIFTH		SIXTH		SEVENTH		EIGHTH		NINTH		TENTH	
Delaware	265	Chev	99	Ford	61	Pontiac	25	Ply	21	B-O	12	Chrysler	9	E-Pa	5	DS-R-W	3	L S	2	*	1
Illinois	5053	Chev	1323	Ford	1091	Ply	244	Pontiac	338	Dodge	244	Olds	227	Buick	210	DS	128	Chrysler	114	Willys	85
Florida	1315	Chev	423	Ford	316	Ply	159	Austin	117	Pontiac	56	Dodge	51	Buick	39	Essex	29	Willys	22	Olds	17
Kansas	635	Chev	246	Ford	135	Ply	84	Pontiac	40	Essex	19	Willys	18	Rockne	17	Buick	16	D-S	10	Olds	8
Maryl'd	1002	Chev	382	Ford	188	Ply	101	Pontiac	76	Dodge	38	Buick	35	Ch-O	29	Essex	23	Graham	20	De Soto	14
Mich.	3284	Chev	1013	Ford	990	Ply	268	Pontiac	235	Dodge	145	Olds	127	Essex	108	Buick	91	De Soto	44	Rockne	42
Minn.	1792	Chev	766	Ford	335	Ply	182	Pontiac	110	B-O	½1	Dodge	47	Willys	29	R-S	28	Hup	27	Chrysler	26
N. Hamp.	313	Chev	105	Ford	82	Ply	26	Pontiac	15	Buick	14	O-R	12	E-S	9	D-N	7	De Soto	4	Chrysler	3
N. Caro.	907	Chev	383	Ford	196	Ply	117	Pontiac	51	Dodge	34	Austin	29	Essex	24	Chrysler	18	Buick	15	DS-O	7
N. Dakota	221	Chev	91	Ford	41	Ply	30	Pontiac	16	Buick	7	Dodge	6	Ch-O	5	DS-R	4	E-S-W	3	Nash	2
S. Caro.	531	Chev	239	Ford	106	Ply	55	Austin	31	Buick	17	Pontiac	14	D-E	13	Olds	10	Chrysler	8	Willys	6
S. Dakota	222	Chev	90	Ford	39	Ply	25	Pontiac	11	Rockne	9	Dodge	7	B-Ch-O	6	E-W	5	Stude	4	Graham	3
Utah	304	Chev	113	Ford	52	Ply	45	Buick	16	Pontiac	12	Essex	10	Olds	9	Ch-G	8	Rockne	7	De Soto	6
Vermont	148	Chev	50	Ford	27	Ply	22	Pontiac	12	Essex	8	Dodge	7	Buick	5	Olds	4	Ch-Ds-G-Pa-R	2	*	1
Virginia	1343	Chev	503	Ford	315	Ply	150	Pontiac	97	Dodge	60	Buick	37	Essex	34	Olds	29	Chrysler	17	Hup	14
W. Va.	550	Chev	192	Ford	116	Ply	75	Dodge	38	Pontiac	27	Olds	15	Essex	14	Chrysler	12	Buick	11	Rockne	10
Wis.	1464	Chev	438	Ford	290	Ply	186	Pontiac	104	Dodge	83	Olds	50	Buick	48	Rockne	44	Essex	40	Nash	32
D. Col.	1051	Chev	296	Ford	282	Ply	82	Pontiac	77	Dodge	56	Buick	48	Olds	28	Chrysler	25	Essex	21	Graham	16

KEY TO ABBREVIATIONS AND SYMBOLS

A—Auburn, Au—Austin, B—Buick, C—Cadillac, Co—Continental, Ch—Chrysler, DS—De Soto, D—Dodge, E—Essex, F—Franklin, G—Graham, H—Hupmobile, Hu—Hudson, LS—La Salle, L—Lincoln, N—Nash, O—Oldsmobile, Pa—Packard, PA—Pierce-Arrow, P—Plymouth, Po—Pontiac, Re—Reo, R—Rockne, S—Studebaker, WK—Willys-Knight, W—Willys. *—Cars in this position registered as shown.

ALL EYES ON DODGE!

DEALERS LANDSLIDE TO DODGE AS SALES OF MIRACLE CAR SOAR SKYWARD

DEALERS all over the country are climbing on the Dodge band wagon . . . almost a thousand during the past twelve months have switched to the Dodge and Plymouth franchise . . . 410 in the last four months!

Many of these dealers are old-time, hard-headed automobile men. Many are leaders in their localities. On this page are printed the words of a few of these hundreds of representative dealers who have turned to Dodge for greater profits.

The Dodge and Plymouth franchise gives you merchandise that is at least a year ahead of the field from a mechanical standpoint. It gives you an amazingly wide market coverage —95% in passenger cars and 98% in commercial cars and trucks. There is no line you can offer your customers that has behind it greater prestige or a better reputation for supplying first-class merchandise.

The Dodge policy is to cooperate with you in every possible way—and yet not to meddle in the private affairs of your business. Advice is given, plans are furnished, but you are the boss of your own business.

If you are interested in learning the facts about the fastest-growing profit opportunity in the automobile business today, write in confidence to Mr. A. vanDerZee, General Sales Manager, Dodge Brothers Corporation, Detroit, Michigan.

BUZZING WITH ACTIVITY

"I have been in the automobile business for the past sixteen years. I have sold more Dodge-Plymouth cars in the past three weeks than the former cars I handled in three months. My sales floor has been buzzing with activity. The increased action with this Dodge-Plymouth account makes me realize that I have practically been out of the automobile business for the last few years."

By S. L. Savidge, President
S. L. Savidge, Inc.
Seattle, Washington

72% MORE SALES

"I have been in the automobile business for fifteen years. I find that the public's acceptance of the new Dodge and Plymouth has been so great that the sales of these cars become a very easy matter. I have had this new line for three months and in this time have realized 72% more sales than I had anticipated. I found it necessary to make this change from my former line as the number of deals I had lost to me the public's sentiment toward these products."

By Ed. Windler, President
Windler Motor Sales
Milwaukee, Wisconsin

LINE IS BEST

"After observing the interest of the public in your product, studying the potential profit possibilities of your franchise for present and ensuing years, coupled with the courteous treatment extended throughout our negotiations, I am convinced there is no other franchise in which I would invest my time and money."

By Geo. F. Sheraw
Sheraw Motor Company
Altoona, Penna.

PROFIT, GROWTH, PERMANENCY

"I have been engaged in automobile business since 1900. Before taking this account we naturally investigated quite thoroughly the possibilities of all the stronger lines and finally decided on Dodge and Plymouth as offering the greatest opportunity for profit, growth and permanency."

By C. E. Evans, Exec. Vice-Pres.
The Evans Motor Company
Wichita, Kansas

DODGE NAME GIVES PRESTIGE

"We believe the Dodge franchise the most outstanding in the business because of the prestige of the Dodge name dating back for nineteen years, and its present very beautiful modern cars in the price field just above the lowest price bracket, also the commercial car field seems to have unusual promises for a very good volume and the Plymouth with its extreme popularity is highly desirable to us."

By M. Brenner & Sons Motor Co.
Harrisburg, Penna.

NEW TRUCKS MEAN PROFIT

"I was sold—not only on the sales possibility of the 1933 Dodge and Plymouth passenger cars, but also on the fine commercial and truck program which your factory is offering. Since my start with the automobile business back in 1915, I have never been more convinced of the wonderful profit possibilities in the Dodge line and the soundness of the Dodge policies."

By L. A. James, President
James-Motor Company
Denver, Colorado

SURE HE PICKED RIGHT LINE

"It has been seven months since we have signed a contract for Dodge and Plymouth cars on a direct dealership basis. I can sincerely say that today we are more sold that we picked the right contract than we were at the time we signed it. Dodge and Plymouth do everything that their advertisements say they will do."

By Paul R. Seeman, Manager
Turner Auto Company
Uniontown, Pa.

BEYOND FONDEST EXPECTATIONS

"An opportunity presented itself for us to become a Dodge Dealer, so we 'hopped on the bandwagon.' We firmly believe that Dodge and Plymouth are outstanding in their price class. The public acceptance of your products has been quite beyond our fondest expectations."

By M. B. Stilphen, Treas.
Haverhill Motor Co.
Haverhill, Mass.

2 YEARS AHEAD

"My experience in the automobile business has varied during the past ten years. In all my previous experience I have never seen a car so favorably accepted as Dodge and Plymouth in the 1933 Exhibits. From an engineering standpoint, the Dodge car seems about two years ahead of competition, and I personally believe that it will remain so."

By M. L. Yergey, President
The M. L. Yergey Company
Reading, Penna.

RUNS OWN BUSINESS

"We have been in the automobile business for the past eighteen years. Since we have taken on the Dodge and Plymouth line six months ago we have not been aggravated by any factory men prying into our private affairs or taking up our valuable time with a lot of unnecessary red tape. Our sole purpose is to sell Dodge and Plymouth automobiles, Dodge trucks, service, storage, gas, oil, or any other product which will enable us to make money."

By J. F. Grantham
Grantham Motor Sales Co.
Gary, Indiana

WILL LEAD IN SALES

"I have been in the motor car business 14 years. The particular advantages of Dodge and Plymouth over the previous lines handled are, the popularity of the Dodge products. The public greatly appreciates the fine performance of the Dodge and Plymouth. The new Dodge and Plymouth will lead in sales because people realize they are buying the most possible value."

By Bruce D. Barkdoll
Barkdoll Motor Company
Chambersburg, Penna.

CONSIDERS OTHERS . . . PICKS DODGE

"During the past seventeen years my experience has been associated with several different lines of automobiles. Last year, I decided to again re-enter this field and finally decided upon Dodge. Dodge and Plymouth offer an impressive array of mechanical advances and stylishness."

By Leon J. Lichtenstetter, Pres.
Leon J. Lichtenstetter, Inc.
Miami, Florida

BEST FRANCHISE OF THEM ALL

"What attracted me to the Dodge franchise was the large market coverage which included the complete Dodge truck line. Since taking on the line at least five times as many people have been coming into my showroom, and the comment from the car-buying public shows a real preference for the cars I am now handling."

By Chas. A. Pine, Owner
Pine Motor Company
Winchester, Virginia